SPACE LAW

ZHUKOV, G. P.

TRANSLATED FROM RUSSIAN

Published for National Aeronautics and Space Administration
and the National Science Foundation, Washington, D.C. by the
Indian National Scientific Documentation Centre, New Delhi.

TT 68-50636
NASA TT F-517

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(KOSMICHESKOE PRAVO)

ZHUKOV, G. P.

Izdatel'stvo "Mezhdunarodnye otnosheniya" Moskva, 1966

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1969

Contract NSF — C466

Translated and Published for National Aeronautics and Space Administration and the National Science Foundation, Washington, D. C. by the Indian National Scientific Documentation Centre, Hill Side Road, Delhi-12. India.

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Printed at INSDOC, Delhi-12

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TRANSLATOR'S NOTE

The author of this book has quoted profusely from books, newspapers and journals published in English. All these quotations were given by him in the Russian language. The translator has retranslated these quotations from Russian into English without consulting the original English materials, as otherwise it would have required a very long time to bring out the translation. It may therefore be distinctly understood that the English quotations reported here are not verbatim reproductions of the original.

TO THE READER

(Address by German Titov, Pilot-Cosmonaut,
Hero of the Soviet Union)

Soviet people have been keenly following the work of the scientists in all the fields of space research. We are glad to welcome the birth and development of the science on Space Law -- a new field of knowledge. Its aim is to study the legal problems which arise in connection with the conquest of space and to help establish law and order there.

Life is organized in such a manner that wherever he is, man must maintain law. Space is no exception in this regard also. Success of our space flights depends a lot on the nature of the law regulating the space activities. Entire mankind is interested to see that complete law and order prevailed in space, which would exclude arbitrariness and transgression of law, and would prohibit such activities which run counter to the rights and interests of other States.

Entire progressive mankind is interested in the cessation of armament race. We, the cosmonauts, are deeply worried that the influence of the Pentagon is affecting more and more markedly the American space plans. The American press frequently reported that the Pentagon, with the blessings of the President of the USA, intends to launch a special laboratory in the space near the earth. Its task is to check the possibilities of exploiting space for military purposes.

It is well known that the Soviet Union stands for the use of space only for peaceful, and not military, purposes. This is not mere expression of words without action. Soviet cosmonauts carry out peaceful scientific investigations in their flights.

Acknowledging great importance of peaceful uses of space and striving to assist in the development of extensive international collaboration in this field, the Soviet Union proposes that the results of the scientific activities of the Soviet scientists as well as scientists of other countries should be the property of the entire mankind. The Soviet scientists participate in international congresses, conferences and symposia and present reports. The Soviet jurists take active part in many international scientific organizations.

Already a number of international documents have been approved. They are of great importance for legal control of outer space, moon and celestial bodies. Legal measures may effectively help in preventing biological, radioactive and chemical infection of outer space and the earth from space. The problem of averting obstruction of space with objects which have lost scientific and practical importance is also of great significance. Little may be the possibility of collision between a spaceship and a similar 'scrap metal', all the same, it will be better to adopt necessary legal measures as early as possible. In this context should be dealt the problem of stopping radio communication from board the space objects soon after they have carried out their task. This is particularly important for the cosmonauts, because a constant radio contact with the earth has to be maintained during the flight in space. Any disturbance to such contact is fraught with serious consequences. Hence, it is understandable how important are international rules on averting harmful radio disturbances in space.

The cosmonauts cannot be indifferent to what they might face in the event of forced landing on foreign territory. Nobody can guarantee that this will not happen in future. An international agreement on this problem must assure the chance of quick return of the cosmonaut to his motherland.

The Soviet program of exploration and uses of outer space is permeated with deep humanism. This is particularly manifested in the careful preparation which precedes the launching of manned spaceships.

Tenth anniversary of the launching of the artificial satellite of the earth for the first time in the whole world by the Soviet Union falls on 1967. Scientists engaged in all the fields of space research will sum up their findings. In the field of law, G. P. Zhukov sums up the findings for the first time in his book 'Space

Law'. It narrates what has already been done for ensuring law and order in space; it also examines the legal problems connected with further conquest of space. Huge factual and documentary materials and a good style of presentation make this book useful and important to a wide range of readers. Soviet and foreign readers are already acquainted with the publications by the author of this book on various problems of Space Law [particularly, in the journal 'Aviatsia i Kosmonavtika' (Aviation and Cosmonautics)]. I would like once again to emphasize that the interest in problems of space law is colossal. I believe, this is not accidental, because law is inseparable from scientific and technological progress in the field of conquest of outer space.

INTRODUCTION

The period of scientific and technological revolution, which is linked with mastery over nuclear energy, conquest of space, development of automation and other scientific achievements, historically coincided with the epoch of coexistence of different social systems on earth. The program of the Communist Party of the Soviet Union mentions: ''the country of triumphant socialism first unveiled the era of exploitation of atomic energy for peaceful purposes, first laid the path to outer space. The artificial satellites of the earth and the sun, powerful space rockets and interplanetary spaceships, atomic power stations and the triumphant flight of a soviet citizen in spaceship around the earth for the first time in the world have become a symbol of creative forces of the victorious communism, a pride for the entire mankind''[1].

The Soviet Union consistently pursues the policy of peace and takes the resolute stand that space should be used only for peaceful purposes and that it should be the field of most extensive scientific research in favor of mankind.

The example of the Soviet Union testifies that space engineering can be useful for further development of economy, science and culture, for extension of international cooperation. At the solemn unveiling of the monument to the conquerers of space in Moscow on November 4, 1964, M. V. Keldysh, President of the Academy of Sciences of the USSR, said: ''Soviet people see great perspectives which are being opened up by our entry into space. Not far is the time, when this path will help us to achieve colossal progress in radio communication and television, in forecasting weather and solar activities, in dis-

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1. *"Program of the communist party of the Soviet Union", politizdat, 1964, page 16 (Russian edition).*

covering various phenomena on earth which are caused by the effect of cosmic processes. There is no doubt that space engineering will create new superfast means of transport on earth. All this will bring great progress in the material living conditions of the mankind, in the development of culture"[2].

The policy of the imperialist States of exploiting the space engineering mainly for the military purposes is a grave obstacle on the path of achieving such progress. Imperialism, as the CPSU program says, "turns the achievements of human intellect against the humanity"[3]. However, the existence of mighty friendship among the socialist countries and success of the USSR in the development of science and technology are the objective preconditions for devoting space conquest to the service of the entire mankind.

In order to realize these preconditions, it is necessary to establish international law and order in space, which defines rights and duties in this new sphere of human activities. The norms of a new branch of international law -- Space Law -- are to ensure such law and order. Work on spelling out the norms of space law must follow closely the progress of science and technology in order to help extend international cooperation in the field of peaceful uses of space, to strengthen peace and friendship among the nations.

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2. Pravda, November 5, 1964.

3. "Program of the communist party of the Soviet Union", page 28.

CHAPTER I

CONCEPT AND SOURCES OF SPACE LAW

Till recently the formulation of the problem of legal regulation of international relations arising in connection with the conquest of space was somewhat far fetched and fantastic. As a result of great success of the USA and the USSR in conquesting space, this problem not only assumed cognitive but also practical interest.

International documents on legal regulation of outer space are already existing. They are: Declaration of Legal Principles regulating the Activities of the States in the Field of Exploration and Uses of Outer Space, adopted on December 13, 1963 as a resolution of the General Assembly of the UNO, 1962 (XVIII), Treaty on banning the tests of nuclear weapons in the atmosphere, outer space and under water, signed in Moscow on August 5, 1963, and the understanding between the USSR and the USA that objects carrying nuclear and other forms of weapons of mass annihilation should not be placed in outer space. The understanding between the USSR and the USA was confirmed by the resolution of the General Assembly of the UNO 1884 (XVIII) dated October 17, 1963. The Extraordinary Administrative Conference in 1963 adopted important resolutions on the problem of distributing frequencies for space radio services. These resolutions became operative from January 1, 1965. Legal value of all these documents is not uniform, but they impose on the State definite international obligations.

Special international norms, thus worked out, are meant for regulating relations among the States in the field of exploration and uses of outer space and celestial bodies.

The program of space research and its implementation lie within the sphere of internal competence of a State which regulates the norms of rights within the State.

However, when the States carry out separate or joint activities in the field of exploration and uses of space, there appears a definite area of international relations which requires special legal regulation. Thus, a scientific and technological progress in the field of conquesting space is creating real objective preconditions for the emergence, within the framework of common international law, of a new branch of law which is analogous to international maritime and air laws.

The beginning of the XX century witnessed animated discussions on how to call the branch of law which is connected with the development of aviation: air law, aeronautical law, aviation law etc. Nowadays the discussion is centered round the problem of naming the branch of law which is to regulate the relationship among the States in connection with exploration and uses of space. Most diverse names are suggested: astronautical law, etheronautical law, interplanetary law, interstellar law, extraterrestrial law, law of extraterrestrial possessions, law of sputniks and lastly space law and outerspace law.

Depending on one or the other name, the authors tried to elaborate certain aspects of activities which are connected with the entry of man into the space of this universe. Adherents of astronautical law or etheronautical law emphasized navigation.

Uruguan jurist Alvaro Bausa Araukho writes about astronautical law as law which regulates navigation among celestial bodies[1]. Argentinean jurist Armando Cocca thinks that we should discard the name 'astronautical law', because there can be no navigation in outer space, unlike sea and air space. Moreover, journey in outer space means journey among the planets, and not among the stars (astros). Lastly, this name does not consider the necessity of legal regulations of the status of the moon and the planets. Similar arguments are forwarded in literature against the name 'etheronautical law' (derived from the Greek word 'aiter'-'ether'). A similar name, according to the majority of authors, would restrict legal regulation only to the flight of interplanetary ship. A.Cocca prefers the name interplanetary law which covers the problems of journey in outer space as well as the problems connected with exploration of celestial bodies. Regarding this name, literature mentioned that it denotes only the legal norms which are applicable to relationships existing among the inhabitants of different planets. Since man could not establish contact with the inhabitants of some other planet, there is no ground to talk about interplanetary law. Hence the problems of legal control of the spaceships, stations in the orbit as well as other problems connected with exploitation of the artificial satellites of the earth are excluded from the sphere of legal regulations.

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[1] *See Araukho, Alvaro Bausa, Na puti k astronavticheskomu pravu (On the Way to Astronautical Law), "Problemy kosmicheskogo prava" (Problems of Space Law), Foreign literature publishing House, page 82.*

Regarding the term 'extraterrestrial law' it was mentioned that it would provide for division of law in two parts: one connected with the earth, and the other completely detached from it. Such approach ignores the fact that some relationship between the earth and others planets will always exist and hence the name 'extraterrestrial law', deliberately excluding the earth and her legal institutions, will not reflect the actual state of affairs. The name law of extraterrestrial possessions proceeds from the assumption of occupation of moon and other celestial bodies by the State, which contradicts the very idea of cooperation among the States in conquesting space. This idea of cooperation should be the basis of this law.

Soviet literature confirmed the name 'cosmic law'. This is most frequently used by the authors of slavic countries (Poland, Czechoslovakia, Yugoslavia, Bulgaria). The name 'outer space law' ('space law', 'law of outer space', 'droit de l'espace extra-atmospherique', 'weltraumrecht', 'diritto spaziale') was confirmed in other countries. Most diverse names are encountered in the countries where Spanish and Portugese languages are spoken. Hence it is difficult to say which name is more prevalent.

Space law can be defined subject to the sphere of activities of the States (outer space) or the nature of their activities (outer space activities) or both of them.

In 1962, Soviet jurist E. A. Korovin defined space law as the whole complex of norms regulating the legal relationships among the peoples and States in outer space[2]. Merit of such definition lies in the fact that it accentuates legal regulation of the regime in outer space. It keeps in view the norms of international as well as the national law. In accordance with this definition the jurisdiction of space law was restricted within outer space.

The treaty on banning the tests of nuclear weapons in the atmosphere, outer space and under water, dated August 5, 1963 and the understanding between the USSR and the USA that objects carrying nuclear weapons should not be placed in outer space, confirmed on October 17, 1963 by the resolution of the General Assembly of the UNO, can be cited as the examples of international legal regulations of the regime in outer space.

In future one may foresee the emergence, in many cases, of special norms of international law, jurisdiction of which will extend to outer space. However, when space law is defined in terms of the sphere of activities of the States, its jurisdiction does not extend to such cases as collision between a spaceship and a foreign airliner, forced landing of a spaceship on the territory of a foreign State, damage to the latter as a result of such forced landing. Thus, in some cases the mutual relationship among the States based on space activities must be regulated on the basis of the nature of activities and not on the basis of place of its execution. Keeping such cases in view, M. I. Lazarev defines space law as "whole complex of legal norms regulating, on the basis of the principles of peaceful coexistence, the relationships among different States on the earth in connection with the conquest of outer space"[3].

Hungarian jurist G. Gal defines Space Law as 'a complex of legal norms which regulates intrastate and interstate relationships arising in connection with exploration of outer space as well as exploitation of outer space and the celestial bodies (outer space activities) and defines the consequences of such activities keeping in view the rights of individuals'[4]. Gal conceived outer space activities as such activities purpose of which is to launch any object into the orbit around the earth or sun, move these objects along the orbit, bring them back, land on other celestial bodies, their sojourn on these bodies and return flight. Thus, Gal defines space law according to the nature of the given activities, irrespective of the place of their occurrence. In the concept of "space law" Gal also includes the norms of intrastate law which are related to outer space activities. In narrower sense, space law regulates only the interstate relationships. G. Gal combines these norms under a common name "international space law" and considers them as component part of the international law.

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[2] *See Korovin, E., Kosmicheskoe pravo (Space Law), "Aviatsia i Kosmonavtika" (Aviation and Cosmonautics), 1962, No. 10, page 16.*

[3] *Lazarev, M. I., Kosmicheskoe pravo kak rezul'tat tekhnicheskogo progressa (Space Law as the Result of Technological Progress), "Kosmos i mezhdunarodnoe sotrudnichestvo" (Outer Space and International Collaboration), Izd-vo IMO, 1963, page 162.*

We think that the definition of space law should apply only to the spheres of international relations. In space law as well as in other branches of international law for example, maritime law and air law, we assume the existence of suitable norms of intrastate law regulating the problems of outer Space activities which come under the internal jurisdiction of the States.

Space law, as part of international law, must be closely linked with intrastate law of each country, particularly with such institutions of national law which are oriented towards safeguarding sovereignty of the State as well as with legislative acts regulating space flights, legal status of cosmodromes, spaceships and their crew. Internal legislation of a country concerning in any degree the exploration and uses of outer space must agree with the fundamental principles of space law and serve the aim of strengthening international cooperation in the conquest of outer space.

Unlike the definitions of space law cited earlier, Soviet jurist G.P. Zadorozhnyĭ considers that such definition must cover the sphere of activity of the States (outer space) as well as the nature of these activities (outer space activities), irrespective of the place of its occurrence. In this context he says,

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4. Gyula, Gál, Világürjog. Közgazdasdgi és jogi Könyvkiadó, Budapest, 1964, 334.0.

'widening scope of exploration and conquest of outer space has made international control over these activities as well as over the regime in outer space inevitable'[5].

Such an approach seems to be only one which most thoroughly comprehends all the aspects of international control over the activities of the States in the field of exploration and uses of outer space. Having this in view, space law can be defined as the totality of these norms of international law which regulate mutual relations among the States and international organizations in connection with outer space activities and establishing international legal regime in outer space and on celestial bodies.

Space law is being formulated as a branch of public international law. Their foundations are identical. Conclusions of international treaties and establishment of international conventions are the natural process of formation of any new branch of international law.

International treaty is an agreement between two or more parties at an international conference on their mutual rights and duties. It expresses agreed wish of the parties and is based on voluntariness and sovereign equality[6].

In 1959, E. A. Korovin wrote that on the basis of the idea that outer space is an object of common use for the entire mankind (res communis omnium), it should be recognized that the methods and rules for common use can be established by mutual agreement among all the users, i. e., by international agreement[7].

Another Soviet jurist, G. A. Osnitskaya, also considers that ''international agreement, on the basis of equality, about peaceful uses of outer space is the path which should be followed for solving the problem of legal regime in outer space"[8].

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[5] *''Kurs mezhdunarodnogo prava'' (The Course of International Law), Izd-vo ''Mezhdunarodnoe otnoshenie'', 1966, page 259.*

[6] *See ''Kurs mezhdunarodnogo prava'', page 40.*

[7] *See ''Mezhdunarodnaya zhizn' ''(International Life), 1959, No. 11, page 118.*

The Treaty on banning the tests of nuclear weapons in the atmosphere, outer space and under water can serve as an example of the establishment of norms of space law through conclusion of international treaty. The understanding between the USA and the USSR that no object carrying nuclear weapons or other means of mass annihilation should be placed in outer space, approved by the resolution of the General Assembly of the UNO 1884 (XVIII) on October 17, 1963, is an original form of international agreement which is judicially binding upon the parties.

Unlike the Moscow Treaty on banning the tests of nuclear weapons in the three media, the above mentioned understanding between the USA and the USSR has not been registered as a written international agreement with all ensuing legal formalities such as signing, ratification, exchange of ratification certificates registrations in the secretariat of the UNO.

However, the understanding between the representatives of the USA and the USSR that no object carrying weapons of mass annihilation should be placed in outer space and corresponding announcements by their representatives at the session of the UN General Assembly from the view point of international law can be considered, with good reason, as an original form of international agreement legally binding upon the parties.

The provisions of the Regulations on radio communication regarding distribution of frequencies for space radio service, signed by the States in 1963 and coming into effect from January 1, 1965, are contractual in nature.

One should also keep in view the fact that the adoption by the General Assembly of the UNO on December 13, 1963 of the Declaration of legal principles regulating the activities of the States in the field of exploration and uses of outer space confirmed with greater urgency the inevitability of concluding an

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8. *Osnitskaya, G.A., Osvoenie kosmosa i mezhdunarodnoe pravo (Conquest of Outer Space and International law), Gosyurizdat, 1962, page 56.*

appropriate international agreement. The General Assembly of the UNO adopted the resolution 1963 (XVIII), which speaks about the inevitability of formulation of legal principles regulating the activities of the states in the field of exploration and uses of outer space in the form of international agreement.

Soviet Union considers drafting of such an international agreement as one of the immediate tasks of the Judicial Subcommittee. Stand of the Soviet Union on this problem was reflected in the report of the Judicial Subcommittee on the work of its fourth session in 1965. Soviet Union is striving for the conclusion of an international agreement on legal principles regulating activities of the States in the field of exploration and uses of outer space[9].

At the XX Session, on December 20, 1965, the General Assembly of the UNO adopted the resolution 2130 (XX) which once again suggested to the UN Committee on the uses of outer space for peaceful purposes and its Judicial Subcommittee "to examine at an opportune occasion, the question of formulation of legal principles regulating the activities of the States in the field of exploration and uses of outer space in the form of an international agreement".

The draft treaty, formulated within the framework of the UNO develops those principles of space law which have already been incorporated in the Declaration of Legal Principles adopted by the General Assembly of the UNO in the form of a resolution 1962 (XVIII); on the other hand, it also incorporates a number of new provisions.

The resolution of the General Assembly of the UNO 1963 (XVIII), adopted on December 13, 1963, speaks about the steps towards immediate preparation of drafts of international agreements on rendering assistance to the cosmonauts in the event of accident or forced landing and on liability for the damage caused by the objects launched into outer space. The General Assembly of the UNO, in resolution 2130 (XX) adopted on December 20, 1965, urgently recommended to the UN Committee on uses of outer space for peaceful purposes to continue energetically to work out the drafts of international agreements on rendering assistance to cosmonauts and returning the cosmonauts and outer space flying apparatus and on compensating the loss caused by the objects launched into outer space while formulating the legal norms concerning outer space.

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[9] *See United Nations, General Assembly. Committee on Uses of Outer Space for Peaceful Purposes. Report of the Judicial Subcommittee on the work of its fourth session (September 20 - October 1, 1965) submitted to UN Committee on Uses of Outer Space for Peaceful Purposes, October 1, 1965, (further referred as UN doc. A/C. 105/29), page 7.*

To this day, the draft agreements on the first problem have been submitted by the USA, USSR and also jointly by Canada and Australia, and on the second problem by Hungary, USA and Belgium. Thus numerous facts speak in favor of formulation of the norms of space law as the result of conclusion of appropriate international treaties.

E.A. Korovin considered that in the absence of norms emerging from treaties, the problems of international regime in outer space can be solved "in the light of precedents of State and international practice and scientific interpretation of the provisions of existing international law"[10]. In course of time, such practice of the States in some forms of space activities not regulated by the said norms, may assume a steadfast nature to such an extent that the participants in the international meetings will recognize it as the norm of customary international law.

International convention is a code of behaviour which, due to prolonged and universal application, is accepted by the participants in international meetings as judicially compulsory norm[11]. Three basic features are characteristics of the international convention:

1) duration of application, 2) universal recognition and
3) confidence in judicial obligations.

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[10] Korovin, E., O mezhdunarodnom rezhime kosmicheskogo postranstva (On International Regime in Outer Space), "Mezhdunarodnaya zhizn", 1959, No. 1, page 79.

[11] See "Kurs mezhdunarodnogo prava", page 40.

F. I. Kozhevnikov remarks that the first two features are highly relative in nature. Remarks of F. I. Kozhevnikov have great importance for proper understanding of the role of international convention in the process of formulation of space law.

In fact, international practice testifies that in a number of cases quite negligible length of time is required for the formation of international convention. Thus, for example, in 1945-50, certain States, including England, Mexico and Saudi Arabia, unilaterally announced their claims on the continental shelves and its natural wealth beyond the jurisdiction of territorial waters. The institution of continental shelf began to be formed during the decade on the basis of similar practice. A special convention defining its position was adopted in 1958.

Hungarian jurist I. Herzeg considers that on the basis of international convention a rule has been established in accordance with which outer space is open for exploration and uses by States as the common property of the entire mankind. This norm of international convention was approved in the resolutions 1721 (XVI) and 1962 (XVIII) of the General Assembly of the UNO. I. Herzeg draws our attention to the fact that nobody challenged the very fact of launching of space objects into outer space. Objections were raised only in respect of the nature of certain types of activities of States in outer space such as launching of spy satillites, nuclear explosions in outer space etc. French jurist E. Pepen considers that one may speak about the formulation of 'public international law' with jurisdiction over celestial bodies[12]. American jurist S. Shik goes even further and speaks about the prospect of codifying the norms of public international law regulating the space activities of States[13].

American jurist M. Mcdougal is trying to establish that international convention has decisive role in the formulation of the norms of space law[14]. He ascribes to the supporters of international treaty the desire to provide each State with the right to Veto and thereby as though slow down the process of working out the norms of space law. Similar arguments, however, cannot conceal MCDougal's desire to reserve for USA the full freedom of action in outer space. Conclusions drawn by McDougal are indeed far from law and public order in space, which he is supposed to defend.

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[12] *See Pepen, E., Pravovye problemy kosmosa (Legal Problems of Outer Space), "Sovremennye problemy kosmicheskogo prava" (Contemporary Problems of Space Law), Foreign literature publishing House, 1963, page 86.*

[13] *See Shik, S., Kosmos, natsional'naya bezopasnost' i mezhdunarodnoe pravo (Outer Space, National Security and International Law), "Mezhdunarodnaya zhizn'", 1962, No. 3, page 80.*

International convention, undoubtedly, can play a certain role in the process of formulation of the norms of space law. However, its importance in this respect should not be overestimated. International treaty should play the main role in the process of formulation of space law. Task ahead is to subject the activities of States in outer space to legal regulations, to direct and regulate them in accordance with norms of space law emerging from treaties.

Hence, conclusion of international treaties is the most acceptable way of formulating the norms of space law[15].

Such way conforms to the international practice in accordance with which problems connected with international legal regime on land, river, sea and air are regulated, as a rule, by multilateral and bilateral treaties. Law and order in outer space can also be ensured by concluding international treaties containing distinct legal obligations.

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14. *See McDougal, M., law and Public Order in Space. Proceedings of the Conference on Space Science and Space Law. University of Oklahoma, No.4., 1964, No.140.*

15. *See Lukin, P.I., K voprosu ob istochnikakh kosmicheskogo prava, "Institut mezhdunarodnykh otnoshenii, uchenye zapiski, Seriya yuridicheskaya.Voprosy mezhdunarodnogo prava", vyp. 16 (On the Sources of Space Law, "Institute of International Relations, Scientific Transactions, Law Series. Problems of International Law", Issue 16), Izd-vo IMO, 1963, pp.127-146.*

G. P. Zhukov

The United Nations Organization is called upon to play an important role in the process of formulation of the norms of space law through treaties. We have in view the practice of drafting, within the framework of the UNO, international documents on the basis of which corresponding international agreements will be concluded subsequently.

Among the resolutions adopted by the United Nations Organization imposing definite obligations on the States, reference should be made to the Declaration on Elimination of All Kinds of Racial Discrimination.

The Declaration contains the provisions which approve and interprete the commonly accepted principles of international law embodied in the Charter of the UNO and in the Universal Declaration of Human Rights. At the same time it contains provisions which develop the abovementioned principles and envisage adoption of concrete steps for the elimination of all forms of racial discrimination. This resolution was adopted unanimously. Inspte of this, XVIII Session of the General Assembly of the UNO adopted the resolution 1906 (XVIII) in which it requested the Economic and Social Council of the UNO to suggest to the Commission on Human Rights "to recognize the preparation of a draft of international convention on elimination of all forms of racial discrimination as an absolutely urgent and immediate task". This resolution was also adopted unanimously, and accordingly the UN Subcommittee on prevention of discrimination and protection of the minorities as well as the UN Commission on Human Rights prepared a draft of such convention which was approved by the XX Session of the General Assembly of the UNO in 1965. The Declaration on Elimination of All Forms of Racial Discrimination, adopted as a resolution at the XVIII Session of the General Assembly of the UNO, was the basis of this draft convention.

One can cite a number of other analogous examples which make it evident that legal regulation beginning within the framework of the United Nations Organization usually aims at subsequent conclusion of corresponding international agreements[16].

Thus, the common international practice as well as the practice developed in the UNO speaks in favor of contractual way of formulating the norms of space law.

Activities of the nongovernmental international organizations (Interparliamentary Union, International Institute of Space Law, International Law Association, Institute of International Law) as well as the doctrine of space law influence the formulation of norms of space law.

Interparliamentary Union adopted special resolutions on space law in 1963 and 1964. The problems of space law were discussed by the International Law Association at the Conferences in Hamburg (1960), Brussels (1962), Tokyo (1964) and in Helsinki (1966). Resolutions on space law were adopted at the conferences in 1960, 1964, and 1966. The Institute of International Law was established in 1962 for the purpose of studying the problems of space law. A resolution on legal regime in outer space was adopted as a result of thorough discussion of these problems at the session of the Institute held in September 1963 in Brussels.

Special colloquiums in Hague (1958), London (1961), Verna (1962), Paris (1963), Warsaw (1964), Athens (1965) and Madrid (1966), organized at the time of annual congresses of the International Aeronautical Federation, were devoted to discuss the problems of space law. The International Institute of Space Law was organized in 1960 within the framework of this Federation.

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[16] *On December 10, 1948, the General Assembly of the UNO adopted the Universal Declaration of Human Rights, which directly mentions that all the rights and freedoms referred therein should be respected everywhere and observed by all the States. Simultaneously with the adoption of this Declaration, the General Assembly of the UNO suggested to the Economic and Social Council to ask the Commission on Human Rights to prepare the drafts of corresponding treaties as urgent and immediate tasks. The draft treaties on human rights prepared by the Commission in 1954 were placed before the General Assembly of the UNO for examination. By the resolution of December 11, 1946 the General Assembly recognized genocide as very grave crime against mankind, and two years later, in 1948, the Convention on prevention of the crime of genocide and punishment for it was established.*

In some countries emerged national organizations of jurists interested in the problems of legal order in outer space. Considering the importance of studying the problems of space law, the presidium of the Academy of Sciences of the USSR has set up a commission on legal problems of interplanetary space. It should be kept in view that representatives of many countries, while discussing the problems of space law at the sessions of the Judicial Subcommittee of the UNO on outer space, not infrequently refer to the documents of the abovementioned non-governmental international organizations as well as to the opinion of most outstanding theoreticians of space law on one problem or the other.

At present space law is still in the stage of formation[17]. Only the initial norms of this law have been established. They far from cover all the relationships which are emerging and may emerge among States in connection with explorations and uses of space. The question, what norms of behaviour should guide the States in similar cases, has not only theoretical interest, but also great practical value. Many jurists in the West are trying to resolve this with the help of concept[18] of Natural Law. According to these jurists, norms of space law give only concrete shape to more common norms of natural law peculiar to human nature and are supposed to be existing independently. When special norms of space law are non-existent, the States should be guided, according to these jurists, by the norms of natural law.

It is well known that natural law theories refute the importance of State agreement (in the form of treaty or convention) as the basic way of formulating the principles and norms of international law, including space law. Role of the States is reduced only to accept the natural law existing independently[19]. It is understandable that similar concepts do not furnish answer to the stated problem and divert our attention from the practical need of establishing the norms of space law.

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[17] *See Khlestov, O.N., Razrabotka norm kosmicheskogo prava, "Sovetskoe gosudarstvo i pravo" (Enunciation of the Norms of Space Law, "Soviet State and Law"), 1964, No. 8, pp. 67-77.*

[18] *Italian jurist R. Kvardi mentions the popularity of similar views in his lecture "International Space Law" delivered at the Hague Academy of International Law (See "Sovremennye problemy kosmicheskogo prava" [Contemporary Problems of Space Law]), Foreign literature publishing House, 1963, pp. 132-137.*

The opponents of natural law in the West have gone to the opposite extreme. Ignoring the actual state of affairs, they speak out in support of the concept of legal vacuum in outer space[20]. Thereby absolute and unlimited freedom of action on the part of States in such cases is recognized.

Soviet jurists repudiated the natural law concepts of space law as well as the concept of legal vacuum. They proceed from the assumption that in the absence of special norms of space law the relationships among the States arising in connection with space activities should be regulated by the general principles of international law. Earlier, in 1959, E.A.Korovin expressed the opinion that "all generally accepted norms of international law about inadmissibility of the application of force for resolving international disputes, about not causing any damage to foreigners and their property, about the responsibility of the States for the action of their agents etc. operate in the space as well. Presence or absence of some specialized legal systems, corresponding, for example, to international control over sea, cannot affect the principles of law which have been generally accepted in this age and can be applied wherever men work, be it on land or sea, in air or space"[21]. Other Soviet authors also are coming to similar conclusions[22].

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[19] *See Zhukov, G.P., Kritika estestvenno-pravovykh teorii mezhdunarodnogo prava (A Critique of Natural-Law Theories of International Law), Izd-vo "Yuridicheskaya Literatura", 1964, pp. 83-120.*

[20] *Becker, L., Erstwhile legal adviser to the State Department of the USA, mentions the prevalence of such views in American literature in his article "Main Aspects of the Problem of Space Law" (See "Space Law. A Symposium", Wash., 1959, page 371).*

[21] *Korovin, E., O mezhdunarodnom rezhime kosmicheskogo prostranstva, "Mezhdunarodnaya zhizn'", No. 1, page 79.*

[22] *See, for example, Osnitskaya, G.A., Osvoenie kosmosa i mezhdunarodnoe pravo, page 37.*

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Viewpoint of the Soviet scientists regarding the assumption that States should be guided by the general principles of international law not only on the earth, but also in space found total approval in the resolutions of the General Assembly of the UNO 1721 (XVI), 1802 (XVII) and 1962 (XVIII).

Authors, dealing with the problems of space law, often enter into polemics as to how far appropriate and useful is the analogy between space law on the one hand and maritime law and air law on the other as well as international legal state of the Antarctica. Majority of the authors are inclined to accept that analogy is possible only for working out certain special problems of legal regulation of the activities of the States in outer space. On the whole such analogy has no decisive value due to specific nature of the activities of the States in space. Moreover, it is not acceptable in a number of cases.

CHAPTER II

BASIC PRINCIPLES OF SPACE LAW

The principles of space law are the most general (concentrative) expression of the code of conduct which should guide the States while carrying out space activities. These principles define the specific nature of space law as an independent branch of international law. They predetermine the basic trends of future formulation of the norms of space law in respect of concrete relationships arising among the States while carrying out their space activities. Besides, the principles of space law are the criterion of legality of these concrete norms wherein lies the fundamental importance of the principles of space law. Attaching great significance to legal regulation of the space regime, the Soviet Union from the earlier days of space age has been calling for working out the basic principles of space law. In March, 1958, the Soviet Union suggested conclusion of a broad international agreement on collaboration in exploration and uses of outer space[1] and took initiative in raising this question in the United Nations Organization[2].

The Soviet Union actively participated in adopting the earlier resolutions of the United Nations General Assembly [1472 (XIV), 1721 (XVI), 1804 (XVII)], which marked the path of collaboration among the States in conquesting space and working out the principles of space law.

A special body -- UN Committee on Uses of Outer Space for Peaceful Purposes[3] -- has been set up within the framework of the United Nations Organization with active participation of the Soviet Union.

In accordance with the resolutions of the UN General Assembly dated December 12, 1959 [1472 (XIV)], this Committee was particularly authorized to study the legal problems which may arise in connection with exploration and uses of outer space[4]. Two Subcommittees -- Scientific-cum-Technical, and Judicial[5] -- were set up for fulfilling the tasks entrusted to the UN Committee on outer space.

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[1] *See Pravda, March 16, 1958.*

[2] *See UN document A/3902.*

[3] *See UN document A/Res. 1472 (XIV).*

The activities of the UN Committee on outer space and its Subcommittees are based on the principles of unanimity which considerably helped in thoroughly discussing the problems, in striving for the achievement of mutually acceptable solution for all the problems under discussion, keeping in view the interests of all the States. The efforts of the USSR are directed towards achieving solutions of most important legal problems which life has placed before the States in the space age.

At the first stage of the conquest of space it was sufficient to recognize that international law, including the Charter of the UNO, accompanies man's entry into outer space of the universe. This was confirmed by the UN General Assembly in the resolutions 1721 (XVI) and 1802 (XVII). In practice, this meant the approval of a definite legal regime in outer space to which the States should conform their activities. This meant, first of all, that any action on the part of a State in outer space should conform to the principles of peaceful coexistence, on which is based the UN Charter as well as the entire contemporary international law[6].

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[4] *See UN document A/Res.1472 (XIV) and A/Res.1721 (XVI).*

[5] *See Kovalev, F.N., Komitet OON po ispol'zovaniyu kosmicheskogo prostranstva v mirnykh tselyakh [UN Committee on Uses of Outer Space for Peaceful Purposes], "Kosmos i mezhdunarodnoe sotrudnichestvo" [Outer Space and International Collaboration"], pp. 77-109; Zhukov, G.P., OON i problema mirnogo ispol'zovaniya kosmicheskogo prostranstva [The UNO and the Problem of Peaceful Uses of Outer Space], "Sovetskiĭ ezhegodnik mezhdunarodnogo prava" ["Soviet Yearbook of International Law"], 1960, Izd-vo AN SSSR, 1961, pp. 177-185; Morozov, G.I., Organizatsiya ob'edinennykh natsii [United Nations Organization], Izd-vo IMO, 1962, pp. 419-425.*

[6] *See Korovin, E., O Mezhdunarodnom rezhime kosmicheskogo prostranstva [On International Regime of Outer Space], "Mezhdunarodnaya zhizn'", 1959, No. 1, pp. 71-80; By the same author - Mezhdunarodnoe pravo v kosmose [International Law in Outer Space], "New Times", 1962, No. 17, pp. 13-14; Kovalev, F.N., I.I. Cheprov, O razrabotke pravovykh problem kosmicheskogo prostranstva [Enunciation of Legal Problems of Outer Space], "Kosmos i mezhdunarodnoe sotrudnichestvo", pp. 49-76.*

Guided by the interests of further progress in the conquest of space and development of international collaboration in this field, the Soviet Union proposed in the United Nations Organization a clear and comprehensive program as laid down in the USSR draft on the Declaration of Legal Principles regulating the Activities of the States in the Field of Exploration and Uses of Outer Space, first placed in May, 1962, and then in the revised form in April 1963[7].

The efforts of the USSR in this respect had their results. At the XVIII session, the UN General Assembly, on December 13, 1963, unanimously approved the Declaration of Legal Principles regulating the Activities of the States in the Field of Exploration and Uses of Outer Space which echoed corresponding Soviet proposals[8]. This Declaration was a new step towards the establishment of the norms of space law. Representatives of the USA, USSR and several other nations announced their desire to observe the principles of space law and be guided by them while exploring and using outer space[9].

In connection with the approval of the Declaration quite naturally arises the question about the ways and perspectives of further development of the principles of space law. The practice resorted to in the United Nations Organization while solving a number of other important legal problems has great significance for solving this problem. The practice speaks in favor of formulating space law through agreement and particularly in favor of the need of registering the basic principles of space law in a treaty type agreement worked out on the basis of the Declaration.

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7. *Zhukov, G.P., Prakticheskie problemy kosmicheskogo prava [Practical Problems of Space Law], "Mezhdunarodnaya zhizn'", 1963, No.5, pp.37-43; Zolotov, G., Prava i obyazannosti v kosmose [Rights and Duties in Outer Space], "Mezhdunarodnaya Zhizn'", 1963, No.7, pp. 121-123.*

8. *See Stakh, G., Mezhdunarodnyǐ kodeks mirnoǐ deyatel'nosti v kosmose [International Code of Peaceful Activities in Outer Space], "New Times", No.3, p.29; Vanin, I., Kosmos i mezdunarodnye otnosheniya [Outer Space and International Relations], "Mirovaya ekonomika i mezhdunarodnye otnosheniya" ["World Economy and International Relations"], 1964, No.6, pp.18-20.*

9. *See UN document A/C/P1342, p.12.*

As a matter of fact, the UN General Assembly calls for this in its resolution 1963 (XVIII) dated December 13, 1963 (§ 1, chapter I). In this resolution the UN General Assembly recommended to the UN Committee on Uses of Outer Space for Peaceful Purposes and its Judicial Subcommittee "to examine the question of formulating the legal principles of the activities of the States in the field of exploration and uses of outer space in the form of an international agreement at an appropriate time in future".

In this context, it should be kept in view that the Declaration of legal principles adopted at the XVIII session of the UN General Assembly is not universal in nature. Hence the draft treaty, worked out within the framework of the UNO, develops, on the one hand, those principles which were already incorporated in the abovementioned Declaration, and on the other, includes several new provisions.

The principles of space law cover, as has already been mentioned, the most common code of behavior of the States in outer space. Legal validity and universal nature of this common code should not be doubted at all. The edifice of space law should not be raised on precarious and shaky foundation, because at the first serious test it may collapse like a house of cards.

Hence the formulation of the principles of space law in the form of an international agreement which can be signed by all the States is of great importance. The question about the ways of formulating space law is, therefore, not confined to theoretical dispute alone, and it has special practical value. It is quite clear, indeed, that the absence of a firm legal regulation of the activities of the States in outer space is fraught with many dangerous disputes and other consequences not only in this new sphere of human activity, but also in purely earthly affairs. This refers not only to such particular problems as rendering help to the crew of spaceships in the event of accident, calamity or forced landing, holding responsible for damage caused by the objects launched into outer space, but also, to a major extent, to the basic principles of space law. Moreover, absence of accepted norms of space law would cause serious impediment in the way of scientific and technical collaboration of the States in the field of exploration and uses of outer space.

Basic principles of space law

Representatives of the USSR and several other States speak in the UNO about the need of working out an international agreement incorporating the principles of space law. Similar demands are being voiced by a broad section of the world public and most diverse international organizations. The Interparliamentary Union, in a special resolution adopted in September 1963, recommended to conclude "in the earliest period possible an international agreement on the basic legal principles which should regulate the activities of the States in outer space". The same spirit was upheld by the Institute of International Law in a resolution on "Legal Regime of Outer Space" adopted in September 1963 at its session in Brussels.

The Declaration of Legal Principles regulating the Activities of the States in the Field of Exploration and Uses of Outer Space proclaims that outer space and celestial bodies are open for exploration and uses by all the States on the basis of equality and in conformity with international law, including the Charter of the UN (clause 4).

Thus, the Declaration of legal principles twice refers to international law, in conformity with which the States should carry out their activities in the field of exploration and uses of outer space. There was hardly any need of mentioning twice the provision of analogous content in the same Declaration. We think that the clause 2 of the Declaration refers not to the public international law, but to the complex of special norms of international law regulating the activities of the States in the field of exploration and uses of outer space, i. e., the complex of legal norms which constitutes the space law. In practice, this indicates that the activities of the States in the field of exploration and uses of outer space should be carried out in conformity with the norms of space law which is being formulated and with the general principles of international law, including those which have been registered in the Charter of the UN. One of the basic principles of space law is the principle of freedom of exploration and uses of outer space. This principle took shape on the basis of the international practice of launching space objects, which began on August 4, 1957 with the pioneer flight of the Soviet artificial satellite of the earth.

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The legal literature devotes considerable attention to the analysis of the legal nature and content of the principle of freedom of exploration and uses of outer space. In view of the launchings of artificial satellites of the earth by the Soviet Union and the United States of America, the legal literature in 1958-61 discussed the question of legality of the flight of such satellites over the territories of other States. In defense of the legality of such flights the following arguments were placed:

1. International treaty within the framework of the so-called International Geophysical Year on launchings of artificial satellites of the earth.

2. Implied agreement among the States about launching satellites which is testified by the fact that there is no protest from them against such launching.

3. Recognition of the fact that sovereignty of States does not extend to the orbits of the satellites and hence recognition of the rights of States to launch such satellites irrespective of the consent of other States.

4. Conviction that flights of satellites are a new type of activities to which the norms of aviation law are not applicable.

It is wellknown that the first artificial satellites of the earth were sent to the orbit for conducting scientific investigation according to the program of the International Geophysical Year. This program was worked out and agreed upon by the scientists of different countries, including the scientists of the Soviet Union. It envisaged, in particular, carrying out of meteorological, geophysical and other observations with the help of rockets and artificial satellites of the earth. The resolution, adopted at the conference of the special committee of IGY (International Geophysical Year) in Rome on October 4, 1954, proposed to discuss the question of launching small artificial satellites and equipping them with scientific apparatus. There was a proposal for discussing the new problems also which arose in this connection and are linked with such experiments in outer space as electric supply, telemetry and orientation of the spaceship[10]. An announcement was made in April, 1955 that an artificial satellite of the earth would be made and launched in the Soviet Union for carrying out scientific investigations as per program of the IGY.

By the end of July 1955 the Government of the USA announced their desire to launch an artificial satellite in course of the International Geophysical Year[11].

Later on, the plans of launching satellites were repeatedly discussed at the international conferences for the preparation of International Geophysical Year. Officially the International Geophysical Year began on July 1, 1957 and was to continue for 18 months i.e., till December 31, 1958. Subsequently, it was decided to prolong observation according to program of the IGY over the year 1959. This additional period of observation was called the international geophysical collaboration of 1959.

It should, however, be kept in view that successful execution of program of the International Geophysical Year has not created any basis for speaking about international agreement at the State level with regard to freedom of flight of space objects.

Hence, quite correct seems to be the conclusion of the polish jurist E. Shtutskiĭ that "IGY created favorable conditions and favorable atmosphere for unimpeded execution of first space flights but did not create the international basis for free flight of the artificial space objects"[12].

The fact that the proposed launchings of the satellites were announced long before their launchings and not a single State expressed its protest in this connection was quite justifiably interpreted by many authors as the implied agreement about carrying out space activities. The absence of protest on the part of States against the flight of satellites over their territories, however, did not create adequate basis for asserting the legality of such flights. Argument about implied agreement of the States about flights of artificial satellites can be interpreted in favor of extending sovereignty of the States to outer space. In this context, there appeared in literature on space law a tendency to establish the principle of freedom of exploration and uses of outer space on the plea that the sovereignty of States does not extend to outer space. With the same aim in view, but from somewhat different angles were cited arguments about the flights of satellites as a new kind of activity to which sovereignty of the States does not apply.

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[10] *Select Committee of IGY. Bulletin d'information, 1955, No. 4, p. 179.*

[11] *The Department of State Bulletin, 1955, No. 841, p. 218.*

[12] *Sztucki, J., problemy prwne kosmosu, Warszawa, 1965, p. 39.*

All the cited arguments confirmed the legality of the international practice of the flights of satellites over the territories of other States. This practice was first confirmed in the resolution of the UN General Assembly 1721 (XVI) of December 20, 1961.

Nowadays the principle of freedom of exploration and uses of outer space has been universally accepted. It is practically applied in the activity of the States in the field of exploration and uses of outer space primarily on the national basis.

However, the gigantic tasks of conquesting space as well as the difficulties which one must overcome on the path insistently demand coordination and unification of scientific, technical and material possibilities and resources of individual States. Each country can make her worthy contribution to the cause of conquesting space of the universe, which is common to entire mankind.

The Soviet Union attaches great importance to international collaboration in the field of exploration and uses of outer space for peaceful purposes. Such collaboration is carried out by the USSR through the UN and other international Organizations as well as on bilateral basis. At the sessions of the UN General Assembly, in the UN Committee on Outer Space and in its subcommittees, in the specialized institutions of the UN and in other international organizations the Soviet Union acts as an active supporter of scientific collaboration among the States for peaceful conquest of outer space.

Side by side with problems of meteorology and communications, the agenda of these organizations contain such problems as conducting the International year of "the Quiet Sun", synoptical rocket investigations in the polar regions, launching of probe rockets from the international equatorial probing grounds. Activities of the UN help the countries with less developed economy to participate in the program of space exploration. Thus, the Government of India has informed the UN about its readiness to build an equatorial probing ground for launching probe rockets in Thumba, 24 km from the city of Trivandrum, and has started its construction[13]. Besides India, special interest for the construction of such probing grounds on their territories was shown by Indonesia and Brazil. The UN General Assembly approved the basic principles of exploiting such probing grounds under the guidance of the UN.

Acknowledging the great importance of peaceful uses of outer space and striving to assist in the development of broad international collaboration in this field, the Soviet Union takes the stand that the fruit of scientific work of the Soviet scientists as well of the scientists of other countries becomes the property of the entire mankind.

The Soviet Union is taking practical steps in this direction. She broadly notifies about all launchings of her satellites, ships and space rockets, communicating in this connection all the data regarding orbits of the flight and radio frequencies.

The Soviet Union carries out international collaboration with the socialist countries in vital fields such as remote radio communications and television with the help of satellites, study of upper strata of the atmosphere and outer space with the help of meteorological and geophysical rockets and artificial satellites of the earth, in the field of space physics, biology as well as medicine. A conference of the representatives of the socialist countries on the problem of collaboration in the exploration and uses of outer space for peaceful purposes was held in Moscow from November 15 to 20, 1965[14].

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[13] *See UN document A/AC. 105/8 and A/AC. 105/10.*

[14] *See Pravda, November 24, 1965.*

In 1962, as a result of negotiations between the Soviet and American scientists -- between the Academy of sciences of the USSR and the NASA -- an agreement on collaboration in the field of peaceful exploration and uses of outer space was signed in Geneva.

The letter of M. V. Keldysh, president of the Academy of Sciences of the USSR, dated October 12, 1962, addressed to J. Webb, Director of the NASA, noted that "the Academy of Sciences expresses hope that the agreement on collaboration in peaceful exploration and uses of outer space will serve as a good beginning for further development and extension of collaboration between the Soviet and American scientists in this noble cause in the name of progress of science and strengthening of peace on the earth"[15].

Materials refering to the abovementioned agreements were distributed at the XVII session of the UN General Assembly to the participants as the official document of the United Nations Organization.

Bilateral negotiations between the USSR and the U.S.A. in Rome in March 1963 and in Geneva in May 1963 resulted in working out scientific and technical recommendations on the question of implementing the abovementioned agreement. These recommendations were later on approved by the Presidium of the Academy of Sciences of the USSR and the authority of the NASA. The first report about the implementation of the acceptable recommendations was placed before the UN in August 1963[16].

The agreement provides for collaboration between the Academy of Sciences of the USSR and the NASA in using artificial satellites for meteorological purposes, in conducting joint experiments on remote radio communications and world magnetic survey[17].

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15. Quotation from UN document A/A. 1/880.

16. See UN document A/5482.

17. See Izvestiya, August 16, 1963.

While appraising this step favorably, one should not, however, close one's eyes to the difficulties which are arising in the field of scientific and technical collaboration between the USSR and the USA in space exploration. These difficulties stem from the striving of the American military circles to use outer space for military purposes. The obstacles on the path of international collaboration can be successfully removed by discontinuing the aggressive policy of the imperialist States, by concluding an agreement on disarmament.

The principle of freedom of exploration and uses of outer space is not equivalent to freedom for conducting in outer space any experiment that any State may choose to carry out. To tell the States: "Do as you like in outer space" does not at all mean establishment of law and order there. It will be only establishment of chaos and anarchy. It would be the greatest injustice, if one of the States gaining foothold in outer space starts activities there, which are prejudicial to other States, and takes the plea that there is freedom of action in space.

Hence, nowadays no one refutes that the principle of freedom of exploration and uses of outer space should have its limit. This means that side by side with the rights of States in outer space it is necessary to define their duties, that after proclaiming freedom in outer space, it is necessary to strengthen the guarantees against misuse of this freedom. Hence, while strengthening the principle of freedom of exploration and uses of outer space, the Declaration at the same time clearly defines what types of activities in outer space are inadmissible from the viewpoint of protecting the interests of national security of other States, and also of development of mutual understanding and strengthening of friendly relations among the States and the peoples.

Nowadays it is generally recognized that outer space is the property of the entire mankind. That is why the Declaration strengthens the principle in accordance with which outer space and celestial bodies are not subject to national appropriation. Together with the ban on placing and testing nuclear weapons in outer space, this provision of the Declaration creates the legal guarantee for using outer space in the interest and welfare of the entire mankind.

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The Declaration contains the principle which binds down the States to act in outer space in accordance with international law, including the Charter of the UNO, in the interest of upholding international peace and security, and development of international collaboration and mutual understanding. In this context arises the question: What norms of international law are applicable to space activities of States?

It is our opinion that there is no reason to interpret the abovementioned provision of the Declaration of the UN General Assembly as extension of all the provisions of individual branches of international law for example, international maritime law or air law to space activities of States. It should be kept in view that the norms of international law concerning land are mostly not applicable to sea, and the norms of maritime law to air. All the more, the specific nature of the new sphere which is being conquested by man -- outer space, substantially different from land, sea and air -- must be taken into consideration.

There is no doubt that the Declaration of the UN General Assembly of December 13, 1963 has in view the general principles of contemporary international law, which must guide the States irrespective of why and where they enter into relations with each other. The UN General Assembly in its resolutions 1721 (XVI), 1802 (XVII) and 1962 (XVIII) confirmed the duty of States to be guided by the abovementioned principles in relations arising among them in connection with the conquest of outer space.

The general principles of international law are registered in the most universal document of this law -- the Charter of the United Nations Organization. That is why the Declaration of the UN General Assembly mentions that the activities of the States, in the field of exploration and uses of outer space must be carried out in accordance with the Charter of the UNO also.

On observance of the general principles of the international law by all the States not only on the earth, but also in outer space depends to a great extent whether the great technical and scientific achievements of our days related to the conquest of space will be used for the welfare of the mankind or, on the contrary, will lead it to a great calamity.

Basic principles of space law

For proper understanding of the provision contained in the Declaration, which binds down the States to act in outer space in accordance with the international legal documents, including the Charter of the UN, it would be of great significance to prepare an universal international legal document in which would be collected and formulated the general principles of international law.

The General Assembly of the UNO in its resolutions 1505 (XV) dated December 12, 1960, 1686 (XVI) dated December 13, 1961, 1815 (XVII) dated December 18, 1962 and 1966 (XVIII) dated December 16, 1963 confirmed the great importance of the contribution to progressive development of international law and its codification.

In resolution 1815 (XVII) the UN General Assembly resolved to proceed, in accordance with article 13 of the UN Charter, to study the principles of international law concerning friendly relations and collaboration among States in conformity with the UN Charter with a view to their progressive development and codification, for the purpose of ensuring their more effective application (clause 2 of the resolution).

In accordance with the abovementioned resolution, the agenda of the XVIII session of the UN General Assembly contained a special point -- "Examination of the principles of international law concerning friendly relations and collaboration among States in conformity with the Charter of the United Nations Organization". The following principles were discussed in the session: ban on threat of application of force and its actual application, peaceful settlement of international disputes, noninterference in the internal affairs of other States and Sovereign equality of the States.

For working out the formulations according to the abovementioned four principles of international law a special UN Committee consisting of 27 nations was set up. A session of this Committee was held in September 1964 in Mexico*.

In accordance with its resolution 1966 (XVIII), the UN General Assembly has : (1) to examine the report of the special Committee and (2) to study the remaining principles contained in

of the States in outer space. It follows from this that the activities of the States in outer space must be carried out in such a manner that the interests in the security of the other States should not be endangered, that no inimical action against them should be taken, that they should not be threatened with force and that application of force should not be resorted to.

The principle of peaceful settlement of disputes is closely linked with the principle of nonaggression. The obligation to settle international disputes only through peaceful means did not exist before the confirmation of the principle of nonaggression in international law. According to the correct remark of the Soviet scholar G.I. Tunkin, "both these principles are, in a sense, two facets of the same medal. If the States are banned from resorting to force in their relations with one another and consequently, in settling disputes, then it means that only the peaceful means of settling disputes remain open. On the other hand, the principle of peaceful settlement of disputes means that force cannot be applied for their settlement"[20].

The UN Charter says that "all the members of the United Nations Organization settle their international disputes through peaceful means in such a manner that international peace, security and justice should not be threatened" (clause 3 of the article 2 of the UN Charter).

Thus, the States carrying out space activities should, in accordance with international law, including the UN Charter, settle their disputes only through peaceful means.

It should, however, be kept in view that the choice of the peaceful means of settling disputes lies with the interested States[21]. With regard to space activities of States, this means that the interested States have the right to settle disputes, which arise in connection with such activities, through negotiation, investigation, mediation, arbitration, court examination, petition to regional bodies or agreements or other peaceful means according to their choice (clause 1 of the article 33 of the UN Charter).

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[20] *Tunkin, G.I., Voprosy teorii mezhdunarodnogo prava [Problems of the Theory of International Law], p. 32.*

[21] *See Movchan, A.P., Mirnye sredstva razresheniya mezhdunarodnykh sporov [Peaceful Means of Settling International Disputes], Gosyurizdat, 1957.*

In the system of general principles of international law the principle of disarmament is of particular importance for legal regulation of the regime in outer space. This principle was confirmed in the UN Charter (article 11) and in the resolution of the UN General Assembly on Universal and Total Disarmament [1378 (XIV)] dated the November 20, 1959[22].

Unlike the principle of nonaggression, the principle of disarmament is a general rule which requires conclusion of special international agreement on the implementation of disarmament together with strict international control appropriate to each stage of disarmament.

The ban under international law on the means of aggression or in other words, universal and total disarmament, would be the natural development of the principle of nonaggression. The latter includes the ban on aggressive war, application of force and threat to apply force in international relations. It, however, does not provide for ban on the means of armed aggression. Ban on all the means of armed aggression would be tantamount to establishment of demilitarization and neutralization of outer space or, in other words, ban on using outer space for military purposes. This would have resulted in the creation of real guarantee that outer space will be used exclusively for peaceful purposes.

Resolutions providing for the use of outer space for peaceful purposes were introduced in the discussion that took place in the Judicial Subcommittee of the UN Committee on Outer Space.

The Soviet Union is the staunch supporter of the ban on using outer space for military purposes. In March 1958, the Soviet Union put forward concrete proposals for the achievement of this aim. The USSR still stands firmly by these proposals.

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[22] *See Bogdanov, O. V., Vseobshchee i polnoe razoruzhenie [Universal and Total Disarmament], Izd-vo "Mezhdunarodnye otnosheniya", 1964, pp. 28-145.*

The Soviet proposals are based on the sensible appraisal of the real state of affairs in the world, on the indisputable fact that disarmament in outer space is inseparably linked with disarmament on the earth. Any other approach is one-sided and unrealistic. Hence it is quite clear that the solution to this problem has to be found within the framework of disarmament.

The Moscow Treaty of August 5, 1963 on banning the tests of nuclear weapons in the atmosphere, outer space and under water, as well as the understanding between the USA and the USSR that objects carrying nuclear weapons should not be placed in the orbit, which was confirmed by the resolution of the UN General Assembly 1884 (XVIII) dated October 17, 1963, has great significance for the struggle for disarmament. The Moscow Treaty which has more than 100 adherent States fixed for the first time the obligation of the adherent States to try to achieve at the earliest "the agreement on universal and total disarmament under strict international control in accordance with the aims of the United Nations Organization"[23].

Conclusion of an international agreement or adoption of some other international document banning espionage from outer space would be an important step towards averting militarization of outer space. Such an agreement could be concluded prior to reaching the understanding on disarmament. This would help in creating the atmosphere of trust and mutual understanding which are so essential for international collaboration for peaceful uses of outer space. In case of arriving at an agreement on disarmament, espionage from outer space, in all probability, would lose practical importance.

As early as in 1962, the Soviet Union put forward the proposal to adopt a document banning espionage from outer space. The draft of the Declaration of Basic Principles regulating the Activities of the States in the Field of Exploration and Uses of Outer Space, presented by the USSR to the Judicial Subcommittee of the UN Committee on Outer Space, contained the provision

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23. *"Sovremennoe mezhdunarodnoe pravo. Sbornik dokumentov [Contemporary International Law. Collected Documents], Izd-vo "Mezhdunarodnye otnosheniya", 1964, pp. 570-573.*

that "the use of artificial satellites of the earth for collecting information, pertaining to reconnaissance, on the territory of a foreign State is incompatible with the aims of mankind in conquesting outer space" (article 9 of the draft)[24].

Such a ban becomes essential because the USA takes a special stand in this problem. American representatives in the UN Committee on Outer Space and in its Judicial Subcommittee tried to justify espionage from outer space on the plea that allegedly it is not banned by the UN Charter. But if the UN Charter does not speak directly about espionage from outer space, conclusion should not be drawn from this to prove its legality. Espionage is banned by the norms of international law. N. Katzenbach, present Attorney General of the Department of Justice of the USA, once expressed the opinion against space espionage as being incompatible with the security of States. He wrote: "High up or down below, it is of no importance for protests which will be made by the State over which reconnaissance is being carried out or for claims which will be put forward by the State carrying out reconnaissance"[25].

Many American authors consider that spy satellites can be destroyed or caught on these grounds. An interesting exchange of opinion on this problem took place during the session of the Select Committee of the House of Representatives of the USA on astronautics and space exploration. D. Feldman, chief adviser to this Committee, asked L. Becker, legal consultant of the State Department, about the possibility of adopting measures on the part of the State against the flight of reconnaissance satellites by way of exercising right to self-defense. Becker announced that measures not amounting to armed aggression may, nevertheless, threaten security of the State to such an extent that it will be compelled to take decisive action for safeguarding its security. In this connection he said that "the military personnel are, first of all, competent to decide whether danger exists or not"[26].

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[24] *See UN document A/AC. 105/C. 2/1.*

[25] *Katzenbach, N., Law and Jurists on Outer Space, "Problemy kosmicheskogo prava", IL, 1965, p. 55 [Russian edition].*

Similar opinion has been expressed in the paper prepared by the Library of Congress of the USA. It says that every sovereign State, which is convinced that the reconnaissance satellites threaten its national security, has the right, within the scope of its scientific and technical capability, to put out of order or destroy such space vehicle[27].

Dutch jurist D. Goedhuis also thinks that it is difficult to deny a State the right to take resolute steps against the satellite which, according to the State, threatens its security.

In order to support the necessity of banning espionage from outer space in an international agreement or in some other document, the following arguments can be furnished: Espionage from outer space is a kind of general espionage which is banned under the norms of all national systems of law. In the USA carrying out espionage from outer space, obtaining through any means defense information which can be used against the interest of any country or in the interest of any foreign power is classified as espionage and liable to severe punishment under the law. If reconnaissance data are collected with the help of a satellite, espionage does not cease to be espionage and responsibility does not diminish at all because of the fact that outer space is used for espionage.

All national systems of law prescribe severe punishment to the spies. The provision banning espionage is applicable to all persons who are connected with espionage in one way or other. Even an organ of a foreign State may come under the jurisdiction of this provision. If an employee of this organ is caught by the victim State after committing the crime, he can be prosecuted.

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26. *"Astronautics and Space Exploration, Hearings before the Select Committee on Astronautics and Space Exploration, 85th Congress, 2nd session".*

27. *Kittrie, N., Aggressive Uses of Space Vehicles. Fourth Colloquium on the Law of Outer Space, "XII International Astronautical Congress, Wash., October, 1962.*

When espionage data are collected by a spy satellite, the responsibility lies with all the persons who took part in planning, organizing and carrying out the espionage.

The State which is the victim of espionage tends to protest to the State which sends spies. After the court trials for espionage are over, the victim State usually sends strong protest to the State which employed the spy in its espionage service. The accused State defends itself, refutes that it sent spies, but never justifies legality of espionage activities. There is no "right of espionage", including espionage from outer space, and there can be none. On the contrary, the general practice of the States against espionage shows that there is an international convention established from time immemorial and linked with the conviction about illegality of espionage, responsibility of the States for espionage and legality of adopting necessary step to protect national security against espionage.

The Hague Convention of 1907 on rules and customs of war, which in articles XXIX and XXX speaks about illegality and punishability of scouts, can be cited as a precedent for banning any kind of espionage in international law. Spy satellites launched by the USA are such scouts, only in peaceful condition.

Launching of these spy satellites in peaceful condition is an inimical act against a peace-loving State. Such acts are incompatible with the provision of the UN Charter particularly with clause 4 of the article 2.

Soviet jurist E.A. Korovin drew attention to the fact that "while accepting the extension to outer space of the provisions of the UN Charter which express, it is wellknown, the principles of peaceful coexistence of States adhering to different systems as for examples ban on threat to apply force and its application, obligation "to live in peace with each other as good neighbors", etc., such kind of action as launching of spy satellites should be accepted as inadmissible"[28].

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[28] *Korovin, E., O mirnom sotrudnichestve v kosmose [Peaceful Collaboration in Outer Space], "Mezhdunarodnaya zhizn'", 1962, No. 3, p. 82.*

Espionage from outer space with the help of satellites carried out by the USA is incompatible with the aims of peaceful exploration and uses of outer space. Illegality of the space espionage was corroborated in the resolutions of the UN General Assembly 1721 (XVI), 1802 (XVII) and 1962 (XVIII). The resolution 1721 (XVI) proclaims that "exploration and uses of outer space should be directed only for the welfare of mankind and for the benefit of all the States... ". The resolution 1802 (XVII) confirms that "the activities of States in the field of exploration and uses of outer space should be carried out in accordance with international law, including the UN Charter, in the interest of friendly relations among the States".

So far as the space espionage is concerned, it is quite admissible to compare it with air espionage which has been declared illegal by the norms of air law. The norms of air law ban the use of camera for this purpose. The Chicago Convention of 1944, signed by the President of the USA, can be cited as an example. Article 36 of this convention reads: "Each contracting State may ban or regulate the use of camera on aircraft which are located over its territory". Hence, it is immaterial to the State from what height the espionage is carried out over its territory. Important is the fact that the objects of espionage and its results remain the same irrespective of wherefrom it is conducted -- from the surface of the land, from the air or from outer space.

While analyzing the nature of space flight, it is necessary, first of all, to consider the aim of launching spaceship. From the history of recent past reference can be made to the draft for defining "judicial regime of the balloons" prepared by Fossil for the Brussels session of the Institute of International law (1902)[29].

Article 7 of the introductory definition in the Fossil draft states: "Air is free. In peacetime as well as in war time the States enjoy in the air only those rights which are essential for their self-preservation. These rights are applicable to suppression of espionage (emphasis is mine -- G. Z.), customs' police, sanitation police and defense need".

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[29] *See Klyuchnikov, Yu., Vozdukhoplavanie i mezhdunarodnoe pravo [Aeronautics and International Law], "Yuridicheskiĭ Vestnik", book XIV (11), 1916.*

Article 8 of the first part of the draft says that the crew of a balloon, without valid reason coming down within the limit of the isolation zone (1.5 km over the territory of the State), can be suspected for espionage, can be chased, forced to land and arrested. In case of disobedience, the balloon can be shot down.

We remember the views of the great French jurist Fossil sixty years after the drafting of the definition of "judicial regime of the balloons", because his opinion about the flight against espionage has real importance even today.

Contemporary international law contains the principle of ban on war propaganda. Ideological preparation of war and, consequently, propaganda of war are considered as an international crime in the rules and regulations and verdicts of the International War Tribunal. The principles of international law, recognized in the rules and regulations of the International War Tribunal[30], were upheld in its verdict. These universally accepted principles were confirmed by the resolution of the UN General Assembly, adopted on December 11, 1946. In the draft code of crimes against peace and security of mankind, prepared by the Commission on International Law in accordance with the abovementioned resolution of the UN General Assembly, preparation on the part of the authorities of any State for application of armed force against another State is considered as crime against peace and security of mankind. The draft code envisages that any deal for committing crimes, enumerated in the draft, is a direct instigation to their commitment, and any attempt at committing these crimes as well as participation in their commitment is considered as crime against peace and security of the mankind[31]. In 1947, the UN General Assembly adopted the resolution 110(11), in which it condemned" any form of war carried out in any country aiming at or capable of creating or accentuating the threat to peace, infringement of peace or act of aggression". This resolution confirmed the principle of ban on war propaganda. According to this principle, the States should not allow war propaganda by their government organs and should take steps so that nongovernmental organizations and private persons did not take part in similar propaganda[32].

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[30] *See Charter of the Inaternational War Tribunal, "Nuremburg Trial", Vol. I, Gosyurizdat, 1952, p. 16; Verdict of the International War Tribunal in Nuremburg, "Nuremburg Trial", Vol. II, Gosyurizdat, 1952, pp. 452-456.*

[31] *See "Sovremennoe mezhdunarodnoe pravo. Sbornik dokumentov", pp. 603-606.*

In socialist countries war propaganda has been banned in legal form[33]. On March 12, 1951 the Supreme Soviet of the USSR passed the Act on Defence of Peace, which states:

"1. To consider that war propaganda, in whatever form it may be carried out, undermines the cause of peace, creates threat of a new war and hence is a heinous crime against humanity.

2. Persons guilty of war propaganda are to be prosecuted and tried as the heinous criminal".

The possibility of using artificial satellites for communications and beaming of radio and television broadcasts and programs is assuming great significance in our age. Will the communications through satellites be used for the development of friendly relations among the nations and dissemination of truthful information or it will be a new channel for the war propaganda and kindling hatred among the nations? Today this question is squarely placed by life, and it cannot be evaded. Hence the Declaration of Legal Principles regulating the Activities of the States in the Field of Exploration and Uses of Outer Space specially reminds us that the resolution of the UN General

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[32] *See Trainin, A.N., Zashchita mira i bor'ba s prestupleniyami protiv chelovechestva [Defense of Peace and Struggle with Crime against Mankind], Izd-vo AN SSSR, 1956, pp. 161-177; Morozov, G.I., K voprosu ob otvetstvennosti za propagandu viony [On the Question of Responsibility for War Propaganda], "Sovetskiĭ ezhegodnik mezhdunarodnogo prava. 1958" [Soviet Yearbook of International Law, 1958], Izd-vo AN SSSR, pp. 312-327.*

[33] *See "Zakony o zashchite mira" [Laws in Defense of Peace], Gosyurizdat, 1953, pp. 13-14.*

Assembly 110(11) dated November 3, 1947, which condemns propaganda that creates a threat to peace, is applicable to outer space also.

The principle of ban on war propaganda is intended to prevent any form of ideological preparation for war, including such one as the propaganda of national and racial hatred and enmity among the nations. It is wellknown that the propaganda machine of fascism extensively used the absurd idea of racial supremacy with a view to preparing for aggressive war. The Chief Prosecutor of the USSR at the Nuremburg Trial drew attention to this fact[34].

The propaganda of national and racial hatred and enmity among the nations was condemned by the UN Declaration on the Elimination of All Forms of Racial Discrimination, unanimously adopted by the UN General Assembly on November 20, 1963.

Article 9 of the Declaration states:

"1. It condemns all propaganda and all organizations, which are based on ideas or theories of superiority of one race or a group of persons of a certain color of skin or ethnic origin and pursue the aim of justifying or encouraging racial discrmination in any form.

2. Any kind of instigation to violence or act of violence on the part of individuals as well as organizations, which is directed against any race or group of persons of another color of skin or ethnic origin, is considered as crime against the society and punishable by law.

3. In order to realize the aims and principles of this Declaration, all States should adopt immediate and positive measures, including the legislative and other measures for legal prosecution and (or) ban against the organizations which encourage racial discrimination or incite to racial discrimination and violence or use violence for discrimination on the basis of race, color of skin or ethnic origin"[35].

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[34] *See "Nuremburg Trial", Vol. 1, Gosyurizdat, 1952, pp. 248-250.*

[35] *"Sovremennoe mezhdunarodnoe pravo. Sbornik dokumentov", p. 273.*

Basic principles of space law

The Soviet Union proposed to formulate the principle of ban on war propaganda applicable to the space activities of the States in the following way: ''use of outer space for propaganda of war, national and racial hatred and enmity among the nations is inadmissible'' (article 5 of the Soviet draft of the Declaration of Basic Principles regulating the Activities of the States in the Field of Exploration and Uses of Outer Space). This formulation more comprehensibly reveals the nature of the principle of ban on propaganda of war, including in it the ban on propaganda of national and racial hatred and enmity among the nations as well. Such formulation can, undoubtedly, be used for working out an international agreement on the principles of space law. It is useful to remember in this context that the Polish Representative at the third session of the Judicial Subcommittee of the UN Committee on Outer Space (March 1964) suggested to set forth in more detail the principle banning the propaganda, which could lead to accentuation of threat to peace or to acts of aggression, in the international agreement.

However, even the present version of the Declaration of the UN General Assembly on the Legal Principles regulating the Activities of the States in the Field of Exploration and Uses of Outer Space echoes the main idea of the Soviet proposal -- to confirm that the principle of ban on war propaganda is applicable to the activities of the States for using outer space.

The Declaration, adopted by the UN General Assembly, blocks all attempt to use the space media of information and communications for the propaganda of war, for kindling enmity and hatred among nations.

At the same time it is well-known that similar propaganda is being justified by reference to notorious "freedom of press" and "nongovernmental" nature of broadcasting organizations.

The question arises: how to prevent such irresponsible activity of private companies in outer space, keeping in view the fact that in the USA, for example, organization of communications through satellites has been entrusted to the private corporation ''COMSAT''.

The Declaration establishes the principle of international responsibility of the State for activities in outer space. If any State decides to allow private companies to take up space activity, it is its internal affair, but responsibility for such activities lies with the State. International collaboration in using outer space should develop at State level, and not at the level of ''State and private entrepreneur''. That is why the Declaration envisages international responsibility of the State for all forms of activities in outer space disregarding whether such activities are carried by the government agencies or nongovernment organizations. Activities of the latter according to the Declaration, should be carried out with the permission and under constant watch of the State concerned.

However, even if in any country the private companies will be allowed to undertake space activities as in the USA, entire international responsibility for activities in outer space will lie with the State concerned.

The Soviet Union proposed to include in the Declaration the provision that the activities in outer space were to be conducted by the States only. This was dictated by fully justified misgivings that conceding freedom in outer space to private companies might result in encouragement of such activities, which the French jurist E. Pepen justly characterizes as piracy.

The principle of freedom of all States of access to outer space does not entitle some of them to act in a manner as would cause damage to other States. Hence the States should refrain from carrying out potentially dangerous experiments in outer space or from any activity that may disturb peaceful use of outer space by other States. The Interparliamentary Union in a resolution dated September 20, 1963, called for this particularly[36]. With a view to staving off all disturbances in the use of outer space, which may arise consequent to conduct of one or the other experiment in outer space, the Declaration establishes the principle of conducting appropriate international consultations.

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[36] *See "Sovremennye problemy kosmicheskogo prava", p. 393.*

by artificial space objects or by their parts on the earth, in the air or in outer space.

In the prevailing condition, when understanding about universal and total disarmament is still lacking, it is important to explain the significance of the concept "exploration and uses of outer space for peaceful purposes", which is contained in the Declaration of December 13, 1963 on Legal Principles regulating Activities of the States in the Field of Exploration and Uses of Outer Space.

The preamble to the Declaration speaks about the general interest of the entire mankind in the progress of exploration and uses of outer space for peaceful purposes and about the desire to help develop extensive international collaboration in scientific as well as in legal aspects of exploration and uses of outer space for peaceful purposes. Article 6 of the Declaration speaks about preventing activities of some States capable of creating potentially dangerous disturbance to activities of other States in the matter of peaceful exploration of outer space.

It is our opinion that practical implementation of the provisions of the resolution of the UN General Assembly 1962 (XVIII) dated December 13, 1963 requires clear and precise definition of this concept. This question was raised in view of the assertion in the official circles of the USA that the concept "peaceful uses of outer space" includes measures of military nature, if they do not amount to an act of direct aggression.

According to the US law, uses of outer space include civil as well as military activities. The concept "peaceful uses of outer space" is tantamount, in this document, to the concept of its uses for nonaggressive purposes. The report prepared by the American Association of Advocates for the National Aeronautical and Space Administration states that so long as an agreement on disarmament which is applicable to space activities of the States, is not concluded, the USA has the right to use outer space for nonaggressive military purposes which are in agreement with the UN Charter. Such use allegedly conforms to the current international law and the USA, with full justification, can assert that it is peaceful[37]. Toeing the official stand of the USA, many American authors propose to differentiate between "aggressive" and "nonaggressive" activities in outer space. They identify nonaggressive activities in outer space with its use for peaceful purposes. Thus, in the opinion of the American jurist S. Beresford, the concept of uses of outer space only for peaceful purposes excludes only aggressive activities in outer space[38]. So far as all other measures of military nature in outer space, i.e., action, which the USA does not consider as aggressive, are concerned, Beresford proposes to incorporate them in the concept of use of outer space for peaceful purposes. Thus, this American jurist tries to prove that use of outer space for peaceful purposes should not exclude such military actions as launching of spy satellites over the territory of other States. If the solution of this problem is sought from similar stand, then activities of States such as launching into the orbit of objects carrying nuclear weapons on board should also be considered as peaceful use of outer space.

But life has totally refuted these arguments. Ban on placing nuclear weapon in outer space mentions that such activities of States have not only nothing in common with peaceful use of outer space, but also present danger to universal peace.

The UN General Assembly fully clarified this question. The resolution 1884 (XVIII) is not restricted to the ban on placing in outer space the weapons of mass annihilation. It speaks about the firm determination of the UN General Assembly to undertake necessary steps in order to stop extension of arms race to outer space and thereby to ensure the use of this space exclusively for peaceful purposes.

Clause 3 of the article 2 and chapter VI of the UN Charter speaks about the peaceful means of settling international disputes. Such means are those, which do not create threat to international peace and security. Clause 3 of the article 2 of the UN

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37. *See 'Report to the NASA on the Law of Outer Space", Wash., 1961, p. 26.*

38. *See Beresford, S., Surveillance Aircrafts and Satellites. A Problem of International Law, "The Journal of Air Law and Commerce", 1960, No. 2, p. 110.*

Charter as well as chapter VI of the same Charter refers to measures, which are not connected with the use of armed forces as peaceful means of settling international disputes.

The concept "peaceful" conforms, according to the UN Charter, to the concept "nonmilitary" and thereby excludes all measures of military nature. Such measures in outer space, as mentioned before, are condemned by international legal documents adopted by the United Nations Organization. Accordingly, the concept" peaceful use of outer space" should exclude all measures of military nature. Such understanding of peaceful use finds similar decision in the International Treaty on the Antarctica of 1959 and in the Charter of the International Atomic Energy Agency of 1956.

The Treaty on the Antarctica clearly states that "the Antarctica will be used only for peaceful purposes. All measures of military nature, such as creation of military basis and fortifications, conducting military manoeuvres as well as test of any kind of weapon, are specially banned" (article 1)[39].

The Charter of International Atomic Energy Agency stresses that "the Agency is striving for earlier and extensive uses of atomic energy for upholding peace, health and welfare in the whole world. As far as possible, the Agency secures the guarantee that the assistance, rendered by it or at its request or under its observation or control, should not be used in such a way which may facilitate any military purpose" (article 11)[40].

The supporters of the interpretation that the concept of uses of outer space for peaceful purposes means its uses for nonaggressive purposes, are trying to strengthen their position by refering to article 51 of the UN Charter which reads: "Nothing in the present Charter shall impair the inherent right of individual or collective self-defense if an armed attack occurs against a Member of the United Nations, until the Security Council has taken the measures necessary to maintain international peace and security''.

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[39] *"Vedomosti Verkhovnogo Soveta SSSR", 1961, No. 31, p. 329.*

[40] *"Mezhdunarodnaya Zhizn'", 1957, No. 3, p. 149.*

In particular, it is asserted that the very statement about the uses of outer space exclusively for peaceful purposes is illegal, because it restricts the right of States to self-defense which has been guaranteed by the UN Charter and by the public international law.

Polish jurist E. Shtutskii is quite right in thoroughly criticizing such a statement. He stresses that ''right of each nation to individual and collective self-defense does not mean that a State must have or has unrestricted freedom in selecting means, methods and place for implementing this right''. Shtutskii points out that such freedom has its limitations and as an example, refers to the Geneva Protocol dated June 17, 1925 on Banning the Uses of Asphyxiating, Poisonous or Similar Other Gases and Bactereological Means in the War and also to the Treaty on the Antarctica of 1959. Such ban, according to Shtutskii, was never considered as incompatible with the right of self-defense.

While applying article 51 of the UN Charter to space activities of States, we think that one should have clear idea about two of its aspects:

1) extending jurisdiction of this article to outer space;

2) Condition in which this article can be applied.

According to the norms of international law, including the UN Charter, use of outer space for inflicting through it a counter attack on the aggressor in the process of self-defense will be legal.

The fact that the general principles of the international law extend to outer space does not mean ban on its uses for military purposes in accordance with article 51 of the UN Charter, which provides for the right of individual and collective self-defense against aggression. Here, however, one should repudiate the attempts to widen the interpretation of article 51 of the UN Charter. As an example, we may refer to the article of

J. Cooper[41], an American Jurist, who asserts that "the traditional right of preventive self-defense does not become restricted on admission to the UN membership"[42].

Such arguments agree with the concept of "preventive war" by nuclear and other weapons of mass annihilation, which has been echoed in the military doetrime of the USA.

Extension of the concept of "preventive war" to outer space is fraught with serious consequences for peaceful exploration and uses of outer space.

Such arguments should be countered by the precise and clear text of the article 57 of the UN Charter which provides for right of self-defense only in case of armed aggression, and does not allow, thereby, preventive action by way of so-called self-defense.

Austrian jurist E. Fazan expresses his opinion in support of legality of self-defense in outer space or from outer space against aggression conducted in it or from it. But, however strange it may appear, he considers that aggression conducted on the earth does not justify counter attack from celestial bodies, even when the enemy has war bases there[43]. According to the just remark of Korovin, such conclusion is probably dictated by humane considerations, but it had no mandatory nature prior to the conclusion of appropriate international agreement on this score[44].

Alongside further elaboration of the basic principles of space law, solution of concrete legal problems connected with the conquest of outer space is of great significance. Appropriate international agreements on a number such problems will further develop the principles of space law and make them more precise. Thereby more detailed legal regulation for the activities of States in the field of exploration and uses of outer space will be enunciated. Thus, for example, the UN General Assembly at its XVIII session asked in the resolution 1963 (XVIII) dated December 13, 1963, the UN Committee on Outer Space and its Judicial Subcommittee "to prolong the study of legal problems which may arise in course of exploration and uses of outer space and, in particular, to adopt measures for immediate drafting of international agreements on rendering help to cosmonauts in the event of accident or forced landing and on responsibility for damage caused by the objects launched into outer space"[45].

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[41] *See Cooper, J.C., Self-Defense in Outer Space and United Nations, "Air Force", 1962, No. 2(45), pp. 51-56.*

[42] *Cooper, J.C., ibid., p. 56.*

[43] *Fazan, E., K voprosu o pravovom rezhime nebesnykh tel (On the Problem of Legal regime on Celestial Bodies), "Sovremennye problemy kosmicheskogo prava", IL, 1963, p. 132.*

[44] *Korovin, E.A., G.P. Zhukov, Introductory article in "sovremennye problemy kosmicheskogo prava", IL, 1963, p. 41.*

Activities of the States in outer space should conform to the principles of space law as well as to the general principles of international law. These principles are meant for ensuring freedom of exploration and uses of outer space by all States and at the same time for excluding in this space all activities which are incompatible with the interest of national security of States.

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[45] *At present the following draft agreements have been placed before the UN: a) On Rescuing the Cosmonauts and the Spaceships in the event of Accident or Forced landing - proposals of the USSR and the USA, and also joint proposal of Australia and Canada; b) On Responsibility for Damage caused by the Objects Launched into Outer Space - proposals of Hungary, USA and Belgium.*

CHAPTER III

DEMILITARIZATION AND NEUTRALIZATION OF OUTER SPACE

At the present stage of development of rocket technology, the problem of banning the use of outer space for military purposes can be most radically solved with the help of an agreement on disarmament, which should provide for simultaneous liquidation of the means of delivery of nuclear weapons and all kinds of military bases on foreign territories. Ban on military use of outer space practically means demilitarization and neutralization of such space[1].

From the viewpoint of international law, demilitarization of outer space should mean ban, within its limits, on all activities pursuing military object in peacetime, and neutralization means exclusion of this space from the sphere of military action in the event of an armed conflict.

Demilitarization and neutralization of outer space can be total or partial.

Complete demilitarization of outer space would mean ban on installation, within its limits, all objects of military import, as well as ban on flight of such objects through outer space.

Thus, total demilitarization of outer space would provide for ban on

1) launching into the orbit around the earth of all objects of military import;

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[1] *See Korovin, E.A, O neitralizatsii i demilitarizatsii kosmosa [On Neutralization and Demilitarization of Outer Space], "Mezhdunarodnaya Zhizn'", 1959, No. 12, pp. 109-110; Kovalev, F.N., I.I. Cheprov, Na puti k kosmicheskomu pravu [Towards Law on Outer Space], Izd-vo IMO, 1962, pp. 124-125; Zhukov, G.P., Demilitarizatsiya i neitralizatsiya kosmicheskogo prostranstva [Demilitarization and Neutralization of Outer Space], "sovetskoe gosudarstvo i pravo", 1962, No. 5, pp. 62-72.*

2) installing all objects of military import on celestial bodies and placing space objects in the orbit around them;

3) use of outer space for (or in time of) military manoeavres and also for testing any weapon such as nuclear bombs and other means of mass annihilation, military rockets, military air-cum-space installations etc.

Accordingly, total neutralization of outer space would provide for ban on using the same at the time of war for

1) launching military space objects for causing damage to the enemy;

2) indirect conduct of military operations;

3) flight of military rockets of one State to the target on the territory of another.

Ban on using the moon and other celestial bodies for military purposes would be an important step towards total demilitarization and neutralization of outer space. The Soviet Union advocates such ban. The draft treaty ''On the Principles of Activities of the States in the Field of Exploration of Outer Space, Moon and Other Celestial Bodies'', introduced by the Soviet Union on June 16, 1966 for consideration of the XXI session of the UN General Assembly, states: "The moon and other celestial bodies shall be used by all the parties to the treaty exclusively for peaceful purposes. Creation of military bases and installations, test of weapons and conduct of military manoeuvres on celestial bodies are banned (article 4 of the draft treaty)[2].

In case of partial demilitarization and neutralization of outer space, certain types of activities of the States in outer space, precisely defined in an international agreement or another document, are banned. As an example of partial demilitarization and neutralization, of outer space, reference can be made to the Moscow Treaty of August 5, 1963 On Banning

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[2] *Izvestiya, June 17, 1966.*

Tests of Nuclear Weapons in the Atmosphere, Outer Space and under Water as well as to mutual understanding between USSR and USA that objects carrying nuclear and other types of weapons of mass annihilation should not be placed in outer space, which was confirmed by UN General Assembly resolution 1884 (XVIII) dated October 17, 1963[3]. The abovementioned Soviet draft treaty "on the Principles of Activities of the States in the Field of Exploration of Outer Space, Moon and Other Celestial Bodies" states: "Parties to the treaty bind themselves down not to instal in the orbit around the earth any object containing nuclear or any other types of weapons of mass annihilation, not to instal such weapons on celestial bodies or by some other means in outer space" (article IV of the draft treaty) [4].

Measures on partial demilitarization and neutralization of outer space are not an end-in-itself. They are to help in arriving at an agreement on total demilitarization and neutralization of outer space.

Conclusion of such an agreement is most closely linked with implementation of disarmament on the earth.

In her proposals on this problem the Soviet Union was motivated and is being motivated out of sincere desire to ensure use of the greatest achievements of science and technology for the welfare of mankind, and not for the preparation of destructive war using latest weapons of mass annihilation.

At the XI Session of the UN General Assembly (1956) the US representatives raised the question of control over rocket weapons[5]. Proposals of the American delegation were detached from the general problem of banning the nuclear weapons and actually concerned only long-range rockets.

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3. *"Sovremennoe mezhdunarodnoe pravo. Sbornik dokumentov", pp. 251-252.*

4. *Izvestiya, June 17, 1966.*

5. *See "Bor'ba Sovetskogo Soyuza za razoruzhenie. 1946-1960 gody" [Struggle of the Soviet Union for Disarmament. 1946-1960], Izd-vo IMO, 1961, p. 219.*

The Soviet Union considered that the problem of rocket weapons should be examined together with ban on nuclear weapons as a whole. One could not restrict onself to adopt measures only in respect of intercontinental ballistic missiles, leaving aside close-range and medium-range missiles as well as other means of delivery of nuclear weapons.

The US delegation defended the idea of control and inspection even at the sessions of the Subcommittee of the five Powers (USSR, USA, Great Britain, France and Canada)on disarmament in the first half of 1957. One of the clauses of the program of control without disarmament, proposed by the Western Powers, stipulated that "not later than three months after the Convention coming into force, the parties to the Convention should cooperate in setting up a technical committee for studying the project of inspection system which would create the ground for ensuring that objects are sent to outer space exclusively for peaceful and scientific purposes" [6]. Ban on using outer space for sending objects of military assignment, i.e., intercontinental ballistic missiles, was proclaimed in the US proposal only as the final aim of the inspection system.

In November 1957, at the XII session of the UN General Assembly, the USA got the approval of the so-called resolution of 24 Powers, which recommended specially the conclusion of an agreement providing for joint study of the inspection system for ensuring that objects are sent to outer space only for peaceful and scientific purposes. In practice, this resolution literally reproduced the US Stand taken earlier in the London Session of the Subcommittee.

Since the USA did not possess intercontinental ballistic missiles at that time, the rèsolution practically referred to control over Soviet missiles. The USA expected to obtain technical information about the Soviet Union through international 'inspection' in order to speed up their missile program. Characterizing the stand of the US Government on this problem, E.A. Korovin wrote: "Discovering in these rockets (Soviet intercontinental ballistic missiles-G. Z.) a new type of weapon which undermines the basis of American policy" from the position of strength'', the US Government, following its favorite principle, reacted to this discovery with a proposal to establish international control and inspection, hoping thereby to obtain those data which the Armed Forces of the USA did not possess''[7].

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[6] *"The Department of State Bulletin", September 16, 1957, p. 453.*

In view of further success of the USSR in conquesting outer space on the basis of achievements in creating powerful intercontinental rockets, USA reviewed its own stand. As early as the beginning of 1958, the USA proposed a ban on use of intercontinental ballistic missiles, while keeping intact its military bases near the border of the Soviet Union, air force and close-range and medium-range rockets.

The USA depicted these proposals as effective means of banning military use of outer space. Thus, the message of Eisenhower, Ex-President of the USA, to the Soviet Government on January 12, 1958, and other Americam proposals raised the question of discontinuing the use of outer space for testing rockets assigned for military purposes, as well as discontinuing production of such weapons which involve use of interplanetary space. In this context proposal was made to recognize that ''outer space should be used only for peaceful purposes'', totally evading the question of liquidating military bases intended for launching nuclear attack on the territory of the Soviet Union [8].

Thus, the American proposals aimed at ban on the use of intercontinental ballistic missiles for military purposes and did not touch other problems of disarmament. While proposing ban on the use of intercontinental ballistic missiles for military purposes, the USA expected to gain significant unilateral advantage at the cost of weakening of the defense capability of the Soviet Union. First of all, the USA tried, in the event of armed conflict breaking out, to ward off the danger of counter nuclear

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7. *Korovin, E.A., O mezhdunarodnom rezhime kosmicheskogo prostranstva [On International Regime of Outer Space], "Mezhdunarodnaya Zhizn'", 1959, No. 1, p. 76.*

8. *While raising the question of banning the use of intercontinental ballistic missiles for military purposes, the USA implemented a series of measures directed at intensifying their rocket armament race.*

attack from outer space, i.e., to establish relative invulnerability of its territory as existed prior to buildup of intercontinental ballistic missiles in the USSR. At the same time the USA wanted to preserve its numerous military bases on foreign territories and rocket weapons threatening the Soviet Union. It is quite natural that such a way of solving the problem did not consider the interests of security of the USSR at all [9].

The Soviet Union, while abandoning military use of intercontinental ballistic missiles which for her is the principal means of defense against aggression, had the right to demand that all other means of delivery of nuclear weapons to a target should be destroyed simultaneously and military bases on the territories of other countries should be liquidated. The USSR did not seek advantage for herself, but she could not ignore her security by way of agreeing to give advantage to others. Such formulation of the problem was also in agreement with the interests of real security of those countries on whose territory foreign military bases were constructed.

That is why the proposals of the Soviet Union always emphasized the need of simultaneous liquidation of long-range rocket devices for delivery of nuclear weapons, and foreign military bases [10].

Conclusion of agreements on this problem would practically lead to disappearance of the threat of attack by one country on the other using atom and hydrogen weapons, which in its turn would create favorable condition for early solution of the problems of total ban on nuclear weapons, including stoppage of its production, withdrawal of armament and destruction of the entire stockpile of these weapons.

The Soviet proposals raised the question of simultaneous ban on devices for delivery of nuclear weapons to a target and on weapons of mass annihilation.

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[9] See *Zadorozhnyĭ, G.P., Atom, kosmos, mirovaya politika,* pp.54-60.

[10] See *"Mezhdunarodnaya Zhizn'", 1961, No.10, Supplement,* pp.4-5, *17-18, 24, 25; "Bor'ba Sovetskogo Soyuza za razoruzhenie. 1946-1960 gody", pp. 245-246.*

The Soviet proposals dated March 18, 1957[11] and April 30, 1957[12] embodied such course of solution of this problem. The Soviet Union, meanwhile completing the work on creating the intercontinental ballistic missiles for the first time in the world, declared that from the moment the agreement on disarmament would come into effect the States possessing nuclear weapons should take the pledge not to use these weapons, including rockets with atom and hydrogen warheads, till nuclear weapons are totally banned. Clause 5 of the Soviet proposal dated March 18, 1957 states: "From the moment this convention comes into effect and till total ban on atom and hydrogen weapons, is effected the States possessing them should solemnly pledge not to use these weapons, including rockets with atom and hydrogen warhead which are considered as banned". Establishment of effective international control over ban on use of guided missiles for military purposes was envisaged as the second stage of disarmament. Clause 4 of the proposal reads: "Simultaneously with the withdrawal of atom and hydrogen weapons from the arsenals of the States, an international control over guided missiles is to be established with a view to using all types of such rockets, which could be used as atom and hydrogen weapons, exclusively for peaceful purposes".

The proposal of the Soviet Government dated April 30, 1957 spoke about the withdrawal of military application of all types of atom and hydrogen weapons, including bombs, rockets of all ranges carrying atom and hydrogen warheads, atomic artillery weapons etc.

Thus, the Soviet proposals of March 18, 1957 and April 30, 1957 enunciated for the first time a precise propgram of demilitarization and neutralization of outer space. The Soviet proposals, in addition to this, envisaged liquidation of foreign war bases on the territory of other States and proposed substantial reduction in armed forces and conventional arms. Implementation of these proposals would be an important step towards universal and total disarmament [13].

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[11] See UN Document SC.1/49.

[12] See UN Document SC.1/55.

[13] See "Bor'ba Sovetskogo Soyuza za razoruzhenie. 1946-1960 gody", pp. 218-245.

In view of evident reluctance on the part of Western Powers to give up nuclear weapons, the question arose about other means of solving the problem of demilitarization and neutralization of outer space. The real path was outlined in the proposals of the Soviet Government dated March 15, 1948[14]. The Soviet Union suggested the conclusion of a broad international agreement on the problems of outer space, which would envisage ban on uses of outer space for military purposes, pledge on the part of the States, which are parties to the agreements, to launch rockets in outer space only in accordance with agreed international program and simultaneous liquidation of bases on the territory of other States, in the first instance, in Europe, Near and Middle East and North Africa. Implementation of measures according to such agreement would be subjected to appropriate international control within the framework of the UNO[15]. Creation of an UN Agency on international collaboration in the field of exploration of outer space was also envisaged in the Soviet proposals.

The Soviet Government proposed such a course of solution for this problem under which all kinds of uses of outer space for military purposes, including use of intercontinental ballistic missiles carrying nuclear warheads, without any exception, would be subjected to ban.

It was recorded in the literature that the Soviet Government did not raise the disputable question: Whether the use of such rockets is the of outer space or not[16].

The Soviet proposal considered that intercontinental ballistic missiles are the devices for delivery of nuclear weapons to a target and, in this respect are not different from smaller rockets and bomber aircraft.

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[14] See Izvestiya, March 16, 1958.

[15] Korovin, E.A., O neitralizatsii i demilitarizatsii kosmosa, "Mezhdunarodnaya Zhizn'", 1959, No.12, pp.109-110.

[16] See Vanin, I., Kosmos i mezhdunarodnye otnosheniya (Outer Space and International Relations), "Mirovaya ekonomika i mezhdunarodnye otnosheniya" (World Economics and International Relations"), 1964, No.6, p. 20.

In this connection, extension of ban on uses of outer space for military purposes to intercontinental ballistic missiles was quite naturally linked up with liquidation of foreign war bases, from which emanates the threat to the territory of the Soviet Union. "Is it that the atom and hydrogen bombs dropped by the aircraft taking off from American war bases, located for example, in Europe or North Africa, are less dangerous for the people than the bombs delivered from intercontinental rockets? Of course, not" - emphasized the proposal of the Soviet Government dated March 15, 1958.

The conditions on the basis of which the Soviet Union proposed to ban uses of outer space for military purposes considered, in equal degree, the interests of security of all the States and did not place any State in any advantageous position.

While initiating this proposal, the Soviet Government thought that its adoption would advance the problem of disarmament from a deadlock, would considerably reduce the danger of outbreak of nuclear war, would be a big step towards total ban on atom and hydrogen weapons and their withdrawal from the arsenals and would help develop broad and effective collaboration among States in exploring outer space for peaceful purposes.

The Soviet Union proceeded from the assumpsion that the United Nations Organization can contribute in solving problem like the ban on uses of outer space for military purposes and liquidation of war bases on the territory of other States - which is important for peace. That is why the Soviet proposal of March 15, 1958 was submitted for examination of the XIII session of the UN General Assembly[17].

The USA, on its part, also submitted on September 2, 1958 to the UN General Assembly the text of the proposal regarding the problem "On the Program of International Collaboration in respect of Outer Space"[18] for inclusion in the agenda of the XIII Session.

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[17] *Draft resolution, submitted by the delegation of the USSR on November 7, 1958 for consideration of the XIII Session of the UN General Assembly, was in line with the proposals of the Soviet Government dated March 15, 1958 (See UN document A/C/1/219, and also Izvestiya, November 14, 1958).*

The question of banning the use of outer space for military purposes was not at all raised in this proposal. The USA wanted to gain time in order to own intercontinental ballistic missiles and did not like to liquidate its war bases on the territory of other States. In course of discussion of the Soviet proposal, the USA took a strongly negative stand. Consequently, it was not possible to attain at the XIII session of the UN General Assembly the conclusion of an international agreement on demilitarization and neutralization of outer space.

The program of universal and total disarmament, proposed by the Soviet Government on September 18, 1959 at the XIV Session of the UN General Assembly marked a new stage in the discussion of the problem of banning the use of outer space for military purposes. The idea of the Soviet proposals was to arrive at an agreement for destroying all kinds of weapons and disbanding all armed forces [19].

The Soviet proposals specially emphasized that along with destruction of all kinds of weapons and disbandment of armed forces, would also be liquidated war bases on the territory of other States and all installations for launching rockets, missiles of any range, including space rockets of military import. According to the Soviet proposal, the rocketry could be preserved for the purpose of transport and peaceful conquest of outer space in the interest of entire mankind.

The main provisions of the Soviet proposal of March 15, 1958 on banning the use of outer space for military purposes were incorporated in the Soviet program of universal and total disarmament. Initiative of the Soviet Government was also directed to solve the problem of demilitarization and neutralization of outer space.

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[18] *See UN document A/3902.*

[19] *See "Bor'ba Sovetskogo Soyuza za razoruzhenie. 1946-1960 gody", pp. 273-297.*

The Soviet proposal was the basis for the adoption by the UN General Assembly of the resolution 1378(XIV) dated November 20, 1959, which mentioned that universal and total disarmament was the most important problem of contemporaneity [20].

Detailed examination of the Soviet plan of disarmament was entrusted to the Committee of ten States on disarmament, specially set up for this purpose.

On March 15, 1960, in accordance with the instruction of the UN General Assembly, this Committee began its function in Geneva[21]. Its task was to work out an integral constructive plan of universal and total disarmament. Five socialist countries -- USSR, Poland, Czechoslovakia, Rumania and Bulgaria , and five Western States - USA, Great Britain, France, Canada and Italy - took part in the function of this Committee. However, despite persistent efforts of the delegations of the socialist countries to reach a mutual understanding for formulating the provisions of the treaty on universal and total disarmament in the spirit of UN General Assembly resolution work of the Committee of the Ten reached a deadlock[22].

The Western Powers declined all concrete proposals about disarmament put forward by the Soviet Union jointly with other socialist countries. The proposals of the representatives of the USA and other Western Powers were reiterating their demands for establishment of international control and inspection of armament, i.e., control without disarmament. The plan proposed by the Western States envisaged at the first stage notification about rocket launching pads and sites of rocket manufacture to the international organization for disarmament. At the second stage, it was proposed to open totally the launching pads for international inspection, and also to ban launching of the space installations capable of carrying weapons of mass annihilation into the orbit. Establishment of control over the production of agreed categories of military rockets was proposed at the third stage [23]. These proposals said nothing about liquidation of war bases on the territory of other States, did not contain any provision for ban on uses of nuclear weapons and for destruction of their stockpile, did not envisage total liquidation of armament and armed forces. The proposals of the Western Powers emphasized control over the production and launching of rockets while preserving American war bases near the border of the Soviet Union. Stand of the Western representatives at the Geneva negotiations forced the delegations of the socialist countries to break off their participation in the work of Committee of the Ten.

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[20] *See Bogdanov, O. V., Universal and Total Disarmament, pp. 126-145.*

[21] *See "Bor'ba Sovetskogo Soyuza za razoruzhenie, 1946-60 gody", pp. 309-331.*

[22] *See Bogdanov, O. V., Universal and Total Disarmament, pp. 218-223.*

Simultaneously, the socialist countries, which are members of the Committee of the Ten, announced their desire to place before the regular session of the General Assembly the Question of disarmament and also the question of what prevented the implementation of the resolution 1378 (XIV) dated November 20, 1959 [24]. In their attempt to shirk responsibility for break in the work of the Committee of the Ten in 1960, the Western Powers began to publicize widely "new" US proposals called "Program of Universal and Total Disarmament under Effective International Control" [25]. The "new" proposals were basically identical with the old ones. As before, control measures in respect of rocket launching, rocket bases etc. were taken as the basis. Again they contained provisions for establishment of international control over launching into orbit of installations, which are capable of carrying nuclear weapons, and preservation of war bases on the territory of others. These new American proposals, on the whole, were not aimed at real disarmament and hence could not become the basis for further business-like negotiations.

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[23] *See Izvestia, March 25, 1960.*

[24] *See Pravda, July 28, 1960.*

[25] *See Pravda, July 8, 1960.*

Considering the objective reality, the Soviet Government decided to introduce the question of disarmament at the XV Session of the UN General Assembly.

Substantial differences in the approach to the solution of the problem of demilitarization and neutralization of outer space on the part of the Soviet Union and the USA, however, became all the more evident in the course of work of the XV Session. The American delegation, headed by D.Eisenhower, in its proposals reiterated the main provision of the plan which was presented by the Western Powers before the Committee of the Ten. Eisenhower once again proposed to establish a system of appropriate inspection supposedly for stopping the launching into orbit and installing in outer space the weapons of mass annihilation. Unlike USSR proposals, the US proposal did not envisage ban on uses of outer space for military purposes. These proposals also sidetracked the issues connected with banning the military use of long-range, medium-range and short-range missiles and liquidation of war bases on the territory of foreign States. It was proposed instead that launching of all spaceships is to be checked earlier by the United Nations Organization [26].

The US proposal supported by certain countries betrayed the urge to establish control over the rocket launching sites without carrying out disarmament. In other words, this proposal screened the urge to legalize reconnaissance of war potentials of the Soviet Union.

On September 23, 1960, the Soviet Government placed before the session of the UN General Assembly ''Main Provisions of the Treaty on Universal and Total Disarmament'', which were based on the Soviet proposals of June 2, 1960 and incorporated all the important aspects revealed in course of discussion over the problem of disarmament [27].

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[26] *See Izvestia, September 25, 1960.*

[27] *The new Soviet proposals incorporated the desires expressed earlier by the Western Powers. The Soviet Government even agreed to undertake measures for reducing the number of conventional armaments at the first stage along with measures for destruction of all means of delivery of nuclear weapons. The proposals of the USSR before the XV Session of the UN General Assembly gave further concrete and precise shape to the provision of control over disarmament.*

The Soviet Government proposed that all States should implement total and final liquidation of all armed forces and armament in three successive stages spreading over four years or any other period to be agreed upon.

In accordance with the announcements made on March 30, 1961 at the XV session of the UN General Assembly, the Governments of the USSR and the USA carried out, on bilateral basis, an exchange of opinion about the problems of disarmament[28]. Consequently, on September 20, 1961, both the Governments placed before the XVI Session of the UN General Assembly a joint announcement about the agreed principles which they recommended as the guide to negotiation on disarmament.

At the XVI Session of the UN General Assembly the Soviet delegation proposed to create a new body for solving the problem of total and universal disarmament under effective international control. The USSR proposed enlargement of the Committee on Disarmament by admitting the representatives of neutral nations whose role in the international arena had increased considerably.

On November 28, 1961, the UN General Assembly commissioned the delegations of the Soviet Union and the USA with the task of working out the proposals about the composition of the Committee and its tasks. The joint Soviet-American draft resolution was submitted for discussion in the Political Committee on December 14, 1961 and was approved on the same day. On December 20, 1961, this resolution was unanimously adopted by the UN General Assembly[29]. Thus, a new Committee on Disarmament was set up consisting of the ten previous members and eight neutral States: India, Burma, United Arab Republic, Ethiopia, Nigeria, Brazil, Mexico and Sweden.

On March 14, 1962 the Committee of the Eighteen began its work in Geneva. At the very first session the Soviet delegation introduced a concrete proposal for universal and total disarmament under strict international control [30]. Introduction of the Soviet draft treaty was the main event in the work of the Committee of the Eighteen. This draft has special provisions for demilitarization and neutralization of outer space.

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[28] *See Izvestia, January 21, 1961.*

[29] *See "Mezhdunarodnaya zhizn'", 1962, No. 1, p. 158.*

The US Government kept on defending its previous stand which was based on the urge to establish, as easly as possible, extensive control over all rocket-launching stations of the USSR and delay ban on uses of outer space for military purposes. This line of action was reflected in the US proposal submitted on April 18, 1962 to the Committee of the Eighteen under the title "Scheme of Basic Provisions of the Treaty on Universal and Total Disarmament in Condition of Peace in the Whole World"[31]. The American Scheme suggested liquidation of the main part of the existing rocket armaments at the Ist and 2nd stages of disarmament (6 years). From the very beginning, emphasis was laid on immediate liquidation of the long-range rockets. The program of rocket disarmament was not bolstered with effective measures for liquidating foreign war bases. So far the first stage was concerned, such bases were not mentioned at all. The Scheme made a vague formulation about "reduction of agreed number of war bases" at the second stage. Incongruence between the paces of liquidation of long-range military rockets and of foreign war bases was quite evident. Thereby the USA would gain unilateral military advantage to the detriment of defense capability of the USSR.

Attention of the Committee of the Eighteen was drawn to the submitted documents -- the Soviet draft treaty on universal and total disarmament and the American Scheme.

Guided by the urge to secure conclusion of a treaty on universal and total disarmament, the Soviet Government proposed at the XVIII Session of the UN General Assembly to convene a conference of States, which are members of the Committee of the Eighteen to be held in the first half of 1964. This conference also did not produce any result, inspite of the efforts of the USSR and several other countries to secure progress on this problem. The Committee was compelled to acknowledge in its report that it could not arrive at any concrete agreement on problems of disarmament as well as on measures aimed at lessening of international tension. Since this report was not discussed at the XIX session of the UN General Assembly, the Soviet Union demanded summoning of the UN Commission on Disarmament for discussing it.

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[30] *See Izvestia, March 15, 1962.*

[31] *See "The American Journal of International Law", 1962, No. 2, Suppl., pp. 899-925.*

The Commission consisting of all the members of the UNO worked from April 21 to June 16, 1965 in New York. A useful exchange of opinion on problems of withdrawl of foreign armies and liquidation of war bases on the territory of other States as well as on banning the use of nuclear and thermonuclear weapons took place in course of the work of the Commission. The proposals of the USSR on these problems were supported by many countries. The important clause examined by the Commission was the clause about convening the World Conference on Disarmament. Despite opposition from the USA, the UN Commission on Disarmament supported convening of such a conference[32].

The question of convening World Conference on Disarmament was discussed at the XX session of the UN General Assembly, held on October - December 1965. In the general discussion taking place during November 17 - November 23, 1965 in the Committee of the UN General Assembly on political problems and problems of security, majority of the speakers enthusiastically supported the idea of convening such a conference. A few delegations, including the US which in course of discussion spoke about various reservations and tried to bind down the convening of World Conference on Disarmament with various preconditions, did not dare vote against an idea which enjoyed such broad support inside the UNO as well as outside this organization. The discussion on November 29, 1965 resulted in the General Assembly of the UNO adopting the resolution on convening World Conference on Disarmament [33].

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[32] *See Izvestia, June 22, 1965.*

[33] *The resolution was adopted by 112 votes in favor, one abstained.*

The resolution mentions the imperative need to exert further efforts for arriving at an agreement on universal and total disarmament under effective international control in order to ensure peace in the whole world. The resolution says that all countries should promote disarmament and collaborate in adopting timely measures for securing progress in this field. The resolution approves the proposal of II Conference of the Nonaligned Countries, held in Cairo in 1964, about convening world conference on disarmament to which all the countries should be invited. The resolution urgently recommends to conduct necessary consultations with other countries in order to constitute a representative preparatory committee which will adopt necessary measures for convening world conference on disarmament not later than 1967.

Significance of this resolution lies primarily in the fact that it opens up for all the countries of the world the possibility of participating in a conference on disarmament and thus may become a new stimulus on way of attaining universal and total disarmament. The Austrian representative, on behalf of his Government, suggested to hold such a conference in Austria.

In accordance with the resolution approved earlier by the XVI Session of the UN General Assembly [34], negotiations on disarmament should be based on the principles set forth on September 20, 1961 before the UN General Assembly in the joint announcement of the Soviet Union and the USA. The announcement stated that the program of universal and total disarmament should have necessary provisions concerning the interests of military establishments of each country in respect of:

"a) disbandment of armed forces, liquidation of military establishments including bases, stoppage of production of weapons as well as their destruction or use for peaceful purposes;

b) destruction of all stockpiles of nuclear, chemical, bacteriological and other types of weapons of mass annihilation and stoppage of production of such weapons;

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[34] *For text of the resolution see "Mezhdunarodnaya zhizn'", 1962, No. 1, p. 158.*

c) destruction of all means of delivery of the weapons of mass annihilation... " In this context, the announcement emphasized that" all measures for universal and total disarmament should be balanced in such a way that at no stage of implementation of the treaty one State or a group of States could gain military advantage, and that security for all States could be ensured to the same degree" [35].

The Soviet program of universal and total disarmament is in full conformity with the above mentioned principles [36]. The USSR proposed to start the implementation of universal and total disarmament with suspension of armament, and with destruction of all military rockets which are capable of delivering nuclear weapons of any calibre to any distance. Exception was made strictly for a restricted number of rockets to be used for peaceful purposes. She proposed to destroy totally all launching stations, pits and platforms for launching rockets, except those stations which are preserved for launching rockets for peaceful purposes, to destroy all equipment to be fitted in the rockets for launching and guiding these rockets. The Soviet program had in view also destruction of all underground sites for storing military rockets and their ancillary devices. The USSR considered it essential to come to an understanding in respect of total stoppage of production of all kinds of combat rockets as well as devices and apparatus for equipping, launching and guiding them. It was proposed to dismantle all plants or shops of plants engaged in manufacturing the abovementioned items to destroy machine tools and equipment specially earmarked for manufacturing only such items, to hand over sites of plants, machine tools and equipment of universal use in order to use them for peaceful purposes and to destroy all sites for testing combat rockets. These measures were to be implemented under the control of the inspectors of international organization on armament*.

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[35] *Report of the Governments of the USSR and the USA to the XVI Session of the UN General Assembly on result of the exchange of opinion between them on problems of disarmament and resumpsion of negotiations in the appropriate body the composition of which is subject to agreement (See Izvestiya, September 21, 1961).*

[36] *See Bogdanov, O. V., Universal and Total Disarmament, pp. 230-231.*

In order to conquest outer space for peaceful purposes the USSR proposed to allow production and test of appropriate rockets subject to the condition that the enterprises producing rockets, and the rockets will be under observation of the inspectors of international organization on disarmament.

These measures were inseparably linked with simultaneous total destruction of missiles, military aircraft, floating and submarine military ships, artillery installations and all other means which can be used for delivery of nuclear weapons. At this stage the Soviet Government proposed to liquidate all bases on the territory of other States and withdraw all foreign forces from these territories.

It is well-known that the Soviet Union possesses powerful long-range and super-long-range rockets which can deliver super-powerful thermonuclear warheads at any point on earth. However, guided by the interests of quickest solution of the problem of universal and total disarmament, of averting the threat of war, the Government of the USSR proposed to implement liquidation of long-range and super-long-range rockets for delivery of nuclear weapons at the first stage together with liquidation of war bases on foreign territories and withdrawal of foreign forces from there.

In order to impede considerably the attack of one State on another by using nuclear weapons during the period when rockets for delivery of nuclear weapons would be destroyed, the Soviet Government proposed to conclude an agreement to the effect that from the beginning of the first stage of disarmament the rockets and space apparatus should be launched only for peaceful purposes and it was proposed to establish international control for the observance of this obligation.

Translator's Note - Inspectors of international organization on armament - seems to be a printing mistake. It is the verbatim translation of the Russian text. The correct version would be : inspectors of international organization on disarmament.

Article 15 of the Soviet draft treaty on universal and total disarmament under strict international control reads:

" 1. Rockets and space apparatus are launched exclusively for peaceful purposes.

2. The International Organization on disarmament exercises control over implementation of the provision of clause I of this article by setting up control groups at the sites for launching rockets for peaceful purposes, which will be present at the time of launching and thoroughly examine each rocket or satellite before launching[37]. Article 14 of this draft treaty provided that the States who are parties to the treaty should previously inform the International Organization on disarmament about all launchings of rockets for peaceful purposes.

By agreeing to destroy missiles and to establish international control in order to see that rockets are launched exclusively for peaceful purposes, the States would thereby ensure demilitarization and neutralization of outer space.

In course of negotiations on disarmament the Soviet Union invariably tried to hasten practical implementation of the resolution 1378(XIV) and with this object in view came forward more than once to accept the Western stand.

Thus, for example, the representatives of the Western Powers announced in the Committee of the Eighteen that the States embarking on disarmament would for some time be in need of some sort of rocket "defense umbrella" in case of quite unexpected attack with some means of delivery of nuclear weapons, which were kept hidden by States and not destroyed in time.

The USSR did not insist on destroying all the means of delivery of nuclear weapons at the first stage of disarmament and agreed to preservation in the USSR and the USA of a strictly limited number, to be mutually agreed upon, of global, anti-aircraft and antimissile missiles till the end of the second stage[38].

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[37] See Izvestiya, March 15, 1962.

[38] See Izvestiya, September 22, 1962.

Later on the USSR went still further to meet the Western stand. The USSR agreed to maintain a restricted number of global, antiaircraft and antimissile missiles under the control of the USSR and the USA on their respective territories not only till the end of the second stage, but also till the end of the third stage, i. e., till the entire process of universal and total disarmament is over. Accordingly, USSR proposed to make an exception for nuclear warheads of rockets to be maintained till the end of the third stage, while destroying all nuclear weapons at the second stage. Rockets with warheads kept by both the sides were to be destroyed at the end of the third stage. She also proposed to establish from the very beginning of the second stage the control over the remaining rockets as well as their warheads[39].

Hence, only an agreement on disarmament can effectively ensure that outer space will exclusively be used for peaceful purposes and that this principle will not be violated.

Achievement of an agreement on disarmament will effectively ensure security of States and create favorable atmosphere for further elaboration of the norms of space law. Many problems will disappear. Thus, for example, the problem of space espionage will lose its significance. The possibility of using setellites, equipped with appropriate apparatus, as the means of control over disarmament will be quite real at the subsequent stage of universal and total disarmament along with aerial inspection.

World community i. e., entire mankind, is vitally interested in averting the danger of extending armament race to outer space[40]. That is why, without slackening their efforts for arriving at an agreement on banning the use of outer space for

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39. *See Pravda, September 30, 1963.*

40. *Tests of nuclear weapons carried out by the USA beyond earth's atmosphere corroborated the prognoses of the scientists about the pernicious effect of similiar experiments on the natural condition of outer space near the earth. According to the announcement of the US Atomic Energy Commission and Defence Department, three American satellites went out of order as a result of similiar experiments with nuclear explosions in outer space (See the New York Times, September 13, 1962).*

military purposes, the Soviet Union is striving for the achievement of partial measures aimed at preventing the extension of armament race, primarily nuclear armament, to outer space.

Thus, at the initiative of the Soviet Union the Treaty on banning tests of nuclear weapons in the atmosphere, outer space and under the sea was signed in Moscow on August 5, 1963[41].

This Treaty, signed by now by almost all the States of the world, was the result of prolonged negotiations on stopping nuclear tests, which were held from 1958 by the USSR, USA and Great Britain[42].

The text of the Treaty[43] comprises a preamble and five brief articles. The premeable contains the principal aims of the parties: desire to ensure ban on all test explosions of nuclear weapons, to put an end to the polution of atmosphere surrounding man with radioactive substances and to arrive as early as possible at an agreement on universal and total disarmament under strict international control.

Article I of the Moscow Treaty imposes on each party the obligation: "... to ban, prevent and withold from all test explosions of nuclear weapons and all other nuclear explosions at any place within its jurisdiction or control:

a) in the atmosphere; beyond atmosphere, including outer space; under water, including territorial waters and open sea; and

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[41] *See Bogdanov, O. V., Vseobshchee i polnoe razoruzhenie, pp. 210-216; Usachev, I. G., Moskovskii dogovor o chastichnom zapreshenii ispytaniĭ yadernogo oruzhiya (Moscow Treaty on Partial Ban on Test of Nuclear Weapons), "Sovetskoe gosudarstvo i pravo", 1964, No. 3, pp. 72-78; Ioirysh, A. I. i M. I. Lazarev, Dogovor, ozdorovlyayushchiĭ atmosferu... (Treaty normalizing Atmosphere), Sotsekgiz, 1963, p. 62.*

[42] *See Bogdanov, O. V., Vseobshchee i polnoe razoruzhenie, pp. 204-212.*

[43] *Izvestiya, July 26, 1963.*

b) in any of other medium, if such explosion causes radioactive fallout beyond the territorial border of a State which conducts such explosion under its jurisdictions or control".

In this provision of the Moscow Treaty (clause I, article I) the following conditions deserve consideration:

1. "All test explosions of nuclear weapons" are banned. The phrase" all tests" in this case indicates that explosions - of big or small yield, of atom or hydrogen or of any other weapon, which can be fabricated on the basis of nuclear energy[44], are banned.

2. "All other nuclear explosions" are also banned. Thus all nuclear explosions, scientific and technical results of which can be directly or indirectly used for manufacturing nuclear weapons are banned in three media [45].

3. Nuclear explosions are banned in three media (under water, in the atmosphere and in outer space) which are under the jurisdiction or control of a State. In this context, it mainly refers to the territory over which a State exercises sovereign authority as well as the territory which is held under its control (e.g. American Trust Territories, British Colonies and Trust Territories). Moreover, there is extraterritorial space such as opn sea and air space over it and also outer space.

4. Besides banning nuclear explosion under water, in the atmosphere and in outer space, the Moscow Treaty lays down ban on such explosions in any other medium, if such explosion results in nuclear fallout beyond the territorial border of a State under the jurisdiction or control of which such explosion is conducted. This refers to underground nuclear tests, if such tests cause drift of radioactive fallout beyond the territory of a State conducting such explosion (e. g. passage of fallout into the

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[44] *See Iorysh, A.I. i M.I. Lazarev, Dogovor, Ozdorovlyayushchii atmosferu, p. 19.*

[45] *Skowronski, A., Prawne problemy moskiewskiego ukladu o zakazie pro'l jadrowych, "panstwo i prawo", N 10, 1963, p.174.*

sea, atmosphere, outer space, territory of another State). These are so-called explosions with fallout.

The Moscow Treaty specially mentions that this provision should not "impair the conclusion of a treaty which will lead to eternal ban on all test nuclear explosions". Thus, the treaty proclaims the desire of the parties for total ban on all nuclear tests.

Clause 2 of article 1 of the Moscow Treaty says: "Each party to this Treaty takes the pledge to abstain in future from inducing, encouraging or participating in any way in conducting any test explosion of nuclear weapons and any other nuclear explosion, no matter where, which are conducted in any one of the media as mentioned in clause 1(i. e., in the atmosphere, outer space and under water-G. Zh.) of this article, or involve the consequences (radioactive fallout beyond the territory of a State under the jurisdiction or control of which such explosion is conducted - G. Zh.) mentioned in this clause I"[46].

Thus, the Moscow Treaty eliminates the chance of evading the ban on tests of nuclear weapons by using the territory of a State which is not a party to this Treaty, or through such a State. As a whole, the Moscow Treaty facilitates conquest of outer space for peaceful purposes and contributes to the security of the flight of the crew of spaceships against the effect of radioactivity. It also creates obstacles on the way of implementing the plans of so-called geophysical war hatched in the USA. The aim of this war is to destroy for a while the defense belt on the earth's atmosphere with the help of high-altitude nuclear explosion and thereby bring down the flux of fatal cosmic radiation on the population of a certain country.

The favorable situation created as a result of conclusion of the Moscow Treaty on banning the tests of nuclear weapons in the atmosphere, in outer space and under water has made it possible to ban location of nuclear weapons or other weapons of mass annihilation in outer space.

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46. Izvestiya, July 26, 1963.

Demilitarization and neutralization of outer space

On September 19, 1963, at the XVIII Session of UN General Assembly, A. A. Gromyko, the Minister of Foreign Affairs of the USSR, announced that the Soviet Government considered it essential to come to an agreement with the US Government about banning the launching of any object carrying nuclear weapons in to the orbit [47]. Favorable attitude to this proposal and acknowledgement of the necessity to negotiate for working out appropriate practical measures were expressed by the US delegation also [48].

The negotiations held subsequently and exchange of opinions between the Soviet Union and the USA resulted in reaching an understanding on placing the draft resolution about the Ban on Launching of Any Object Carrying Nuclear Weapons into Orbit before the UN General Assembly for review. This evoked favorable reaction in other States - the members of Committee of the Eighteen for disarmament. On October 16, 1963,on bahalf of all the countries participating in the Committee of the Eighteen, the draft resolution was placed before the Political Committee. This draft resolution was accepted by all the delegations represented in the Political Committee and was approved without voting. All the speakers at the session of the Committee noted the great significance of this document. On the next day, October 17, 1963, the draft resolution was unanimously adopted at the plenary session of the UN General Assembly and bore the number 1884 (XVIII)[49].

The Moscow Treaty and the understanding that objects carrying nuclear weapons should not be launched into outer space are complimentary. The Moscow Treaty banned the test of nuclear weapons in outer space; it, however, did not exclude the possibility of locating nuclear weapons there. The UN General Assembly resolution 1884 (XVIII) of October 17, 1963 goes further and bans placement of any object carrying nuclear weapons in outer space.

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[47] *See Pravda, September 20, 1963.*

[48] *See Za Rubezhom, September 27, 1963, No. 39, p. 7.*

[49] *See Pravda, October 18, 1963.*

Ban on tests of nuclear weapons in outer space as well as ban on placement of nuclear weapons there is the example of partial nuclear demilitarization of outer space [50].

In the adopted resolution the UN General Assembly welcomes the intention of the USA and the USSR not to place any object carrying nuclear or other weapons of mass annihilation in outer space. At the same time, the General Assembly requests all the States to refrain from launching into orbit around the earth any object carrying nuclear or other weapons of mass annihilation, from installing such weapons on celestial bodies or from placing them in outer space by some other way, from inducing, encouraging or participating in such activities.

At the same time, the resolution 1884 (XVIII) does not ban, and in our opinion it should not be interpreted as banning, the use of nuclear rocket engines and nuclear power installations in the space objects launched for peaceful purposes. The resolution also does not mention the ban on flight of military rocket containing nuclear warhead through outer space, because this would be tantamount to a ban on its use. Hence, it would be a great mistake to assume that the problem of banning the use of outer space for military purposes has already been solved. The Moscow Treaty and the resolution banning launching of objects carrying nuclear weapons into outer space do not ban the use of rocket weapons with nuclear warheads passing through outer space, do not lead to the reduction of such weapons, do not indicate that disarmament has been achieved and race of rocket nuclear weapons ended.

That is why the UN General Assembly in a resolution specially adopted at the XVIII Session expressed satisfaction at the conclusion of the Moscow Treaty and adoption of the resolution banning launching of objects carrying nuclear weapons into outer space, and also requested the States "to resume with all energy and determination the negotiations on universal and total disarmament under effective international control" [51].

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[50] *See Zhukov, G.P., Yadernaya demilitarizatsiya kosmosa [Nuclear Demilitarization of Outer Space], "Sovetskoe Gosudarstvo i Pravo", 1964, No. 3, pp. 79-89.*

[51] *Izvestiya, November 16, 1963.*

The abovementioned documents are a step towards disarmament and guarantee of using outer space for peaceful purposes. Such measures undoubtedly help in reducing the danger of unleashing thermo-nuclear war as a result of fatal accident or probable error.

Ban on launching objects carrying nuclear weapon into outer space in combination with ban on nuclear tests in outer space also reduces the danger of radiation and consequently the threat to space flights.

In connection with the ban on launching objects carrying weapons of mass annihilation into outer space arises the question about the legality of the document which contains this ban. Unlike the Moscow Treaty on partial ban on tests of nuclear weapons, this document has not been formulated as an international treaty with all ensuing formalities (signing, ratification, exchange of ratification certificates, registration in the secretariat of the United Nations Organization).

The ban on launching objects carrying weapons of mass annihilation into outer space has been clothed in the form of a resolution of the UN General Assembly consisting of two parts. The first part mentions the understanding between the USA and the USSR that no object carrying weapons of mass annihilation should be placed in outer space. Corresponding verbal announcement of the representatives of the USA and the USSR are, from the point of view of international law, a peculiar form of international agreement which is legally binding upon the parties to it. Soviet jurists A. I. Ioirysh and M. I. Lazarev consider this understanding between the USA and the USSR as gentleman's agreement between the two Powers [52]. In 1963, when this agreement was concluded, only two countries - the USSR and the USA - had reached outer space and had the potential capabilities of launching nuclear weapon into space orbit. Now France has joined them. However, considering that the number of countries having such capabilities may increase, the resolution requests all States to refrain from

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[52] See Ioirysh, A.I. i M.I. Lazarev, Atom i kosmos, Atomizdat, 1965, p. 55.

placing weapons of mass annihilation in outer space. The call of the UN General Assembly is not restricted to the member nations alone, it is also meant for the nations which due to one reason or other are not members of the UNO.

The States which voted for this resolution have thereby undertaken pledge to refrain from placing weapons of mass annihilation in outer space. Simultaneously they have undertaken the pledge to refrain from inducing, encouraging or participating in any way in the conduct of the abovementioned activities. In practice, this means ban on rendering any assistance, help or support to a State which is preparing or intends to launch weapons of mass annihilation into outer space. At the same time it bans act of provoking another State to carry out such activities. Hence, handing over to another State the carrier rockets for launching nuclear weapons into orbit around the earth or appropriate scientific and technical data, rendering financial or other help for these purposes and even calls for placing rocket-borne nuclear weapons in outer space are incompatible with the resolution of the UN General Assembly.

In accordance with the resolution the placing of not only nuclear weapons, but also any other weapon of mass annihilation in outer space is banned. Though the types of weapons are not enumerated, it is necessary to assume that in this particular case we have in view first of all, those weapons, namely the chemical and bacteriological weapons,[53] application of which has been banned by the international law.

Application of war gases was banned in many international treaties - in the Petersburg Declaration of 1868, in the Hague Conventions of 1899 and 1907 respectively. The USA has signed and ratified the Hague Conventions of 1907 banning the use of poison and poisoned weapons (article 23 IV of the Hague Convention of 1907). The use of asphyxiating, poisonous, lachrymatory or other gases, liquids and substances as well as of bacteriological weapons of conducting war has been banned by the Geneva Protocol of July 17, 1925. The Soviet Union acknowledged in 1927 the Geneva Protocol of 1925. The USA signed the Protocol, but did not ratify it. However, this does not mean that the ban on use of war gases does not extend to the USA.

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[53] *See Bogdanov, O. V., Vseobshchee i polnoe razoruzhenie, pp. 146-164.*

In 1943, F. Roosevelt, President of the USA said: "I categorically declare that we shall under no circumstances resort to the application of such weapons, if only our enemy would not resort to them first" [54].

In 1959, a resolution demanding reaffirmation of the policy proclaimed by President Roosevelt in 1943 was placed in the House of Representatives of the US Congress. The State Department and the Defense Department of the USA, however, categorically declared against the adoption of such a resolution, and it was rejected. [55].

The American Press informs that chemical and bacteriological weapons of mass annihilation are increasing in the USA. Allocation of money for this purpose is increasing year by year. Thus, if by the end of the second world war only 8 million dollars a year were assigned for research in this field, then from 1960 the allocation increased to 50 million dollars a year. In 1962-63 financial year, the sum increased to 100 million dollars, and in 1963-64, to 114.5 million dollars [56]. Sometimes one comes across the statement to the effect that chemical and bacteriological weapons of mass annihilation are humane weapons [57].

Peace loving public in all countries of the world demands ban on use of all weapons of mass annihilation without any exception. Progressive statesmen even in the USA are raising such demand. As an example, we may refer to the statement of the Federation of American Scientists on biological and chemical weapons of mass annihilation, adopted in the spring of 1964. In this statement the American Scientists appealed to the US President to declare unilaterally the policy of witholding the first application of biological and chemical weapons, accumulation of these weapons and of suspending the work on the creation of its new types.

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[54] *"Bulletin of the Atomic Scientists", Chi., 1964, October, p. 34.*

[55] *ibid.*

[56] *"Wall Street Journal", August 16, 1963.*

[57] *See for example, Rothschild, J., Tomorrow's Weapons. Chemical and Biological, N.Y., 1964, p. 271.*

Besides the abovementioned unilateral actions, the Federation of American Scientists called the US Government to strive for the conclusion of a special international agreement on banning the use of biological and chemical weapons and suspending its production and improvement[58].

The statement points out that the biological and chemical weapons of mass annihilation are aimed mainly against the peaceful population, and other accumulation substantially stands in the way of carrying out measures for averting the danger of world war.

Relevant in this connection are those weapons of mass annihilation which are being worked out or may be invented in the near future. For example, a lot is being written in American Scientific literature about the scientific research on a new type of "absolute weapon" - fatal rays of collosal destructive force. It is pointed out in this connection that such a weapon "can reduce rockets into vapor and multimegaton bombs into something like flakes"[59].

According to the American press reports, within the framework of the administration of research and technical work of the Defense Department functions a special group which is engaged on the problem of practical application of this weapon of mass annihilation [60].

These examples testify that the resolution was quite justified in mentioning other means of annihilation which are either already known or will be developed later.

The UN General Assembly resolution 1884 (XVIII) dated October 17, 1963 imposes ban on placing nuclear weapons or other weapons of mass annihilation in outer space. The question: Where

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58. *See Federation of American Scientists [FAS] Statement on Biological and Chemical Warfare, "Bulletin of the Atomic Scientists", Chi., 1964, October, p. 46.*

59. *Za Rubezhom, October 19, 1963, No. 42, p. 11.*

60. *"New York Journal - American", May 13, 1962.*

is the demarcation line between the outer space and the air space?, may arise quite naturally. This question did not arise while concluding the Treaty on banning tests of nuclear weapons in the atmosphere, in outer space and under water, because the ban extended equally to all the three media already referred to.

The UN General Assembly resolution 1884 (XVIII) contains an appeal to refrain from launching objects carrying nuclear weapons into orbit around the earth.

However, the imposition of ban on placing objects carrying nuclear weapons or other weapons of mass annihilation in outer space is not restricted to space near the earth. Besides the appeal to all the States to refrain from launching objects carrying nuclear weapons into orbit around the earth, the UN General Assembly resolution 1884 (XVIII) also contains an appeal to refrain from "installing such weapons on celestial bodies and placing such weapons in outer space by some other way". Hence, this resolution cannot be interpreted to mean that the States have the right to launch objects carrying nuclear weapons in the direction of other celestial bodies or into orbit around these bodies, except earth.

In view of the prospect of conquesting the moon, Mars and Venus in near future, the measure undertaken for averting extension of arms race to the distant regions of outer space is timely.

Since the UN General Assembly has adopted the resolution 1884 (XVIII), the States should not only observe it conscientiously, but also avoid action which may facilitate the extension of arms race to outer space.

The Soviet Union harnesses her success in the conquest of outer space exclusively for peaceful purposes.

The UN General Assembly resolution 1884 (XVIII), adopted at the initiative of the Soviet Union, is an important step towards collaboration among States in working out the principles of space law. It develops the important principles of space law, which were embodied in the resolutions 1721 (XVI), 1802 (XVII) and 1962 (XVIII).

In order to avert the extension of arms races, and primarily of nuclear weapons, to outer space, the UN General Assembly specially stipulates in the abovementioned resolutions that study and exploration of outer space should be conducted only for the welfare of mankind, in the interest of friendly relations among States and that outer space and celestial bodies are not subject to appropriation by States. The basic idea of these provisions is that the activities of the States for conquesting outer space should serve the cause of peace, and not of war. This general demand finds concrete expression in the resolution 1884 (XVIII) which has been called upon to disallow extension of nuclear weapons to outer space.

It is quite natural that placing in outer space of objects carrying nuclear weapons, which can at any time be directed to the territory of another State, is incompatible with the UN Charter which imposes on a State the obligation of "showing patience and living together in peace like good neighbors".

Hence, such activities of a State as launching of objects carrying nuclear weapons into orbit around the earth should be termed, from the viewpoint of the UN Charter(clause 4 of article 2), as impermissible threat of the application of force with all ensuing international consequences. The resolution 1884 (XVIII) gives a concrete shape to this general provision of the UN Charter with regard to outer space activities of States.

The understanding about nonlaunching of objects carrying nuclear weapons into orbit does not envisage any system of international control and inspection.

It is quite evident that averting extension of nuclear weapons to outer space serves the cause of defending universal peace and international security. The UN General Assembly resolution 1884 (XVIII) of October 17, 1963 has been called upon to play this very role.

The UN General Assembly resolution 1884 (XVIII) evoked warm response and approval among all the people of good will.

The understanding about nonlaunching of objects carrying nuclear weapons into orbit must serve as an obstacle on the way of extending nuclear arms race to outer space - such is the idea of the agreement which came into being at the initiative of the USSR and was approved by the UN General Assembly. Similar agreement, the American press points out, "facilitates the acceleration of the motive forces of the Moscow Treaty on banning nuclear tests" and is the first and tangible measure among all the measures which were adopted so far for attaining the aim of making outer space a zone of peace"[61].

However, one can not forget the fact that in the USA exists a sizable group of politicians and army personnel who are protesting against the UN resolution. For example, according to the opinion of Senator B. Goldwater, the leader of the "frantics", the UN General Assembly resolution is almost a betrayal of America, because it "kills" the American program of military use of outer space[62].

According to the assertion of some American press agencies", the evident danger of an agreement like imposition of ban on space objects carrying nuclear weapons lies in the fact that it may create a false feeling of security and will create persistent pressure for reducing military potential of the USA which enables her to launch instant counter attack or even to undertake early actions in order to forestall the aggressor"[63].

Sometimes attempts are made to prove that this agreement bans the device which cannot be used nowadays because of technical difficulties and thereby has no practical importance to-day[64].

Such comments hint at waiting for the time when at last objects carrying nuclear weapons will be launched into outer space and the problem will thus assume "practical" importance. However, it is evident that disallowing extension of nuclear weapons to outer space is much simpler than allowing time to pass and then trying to displace from this space the nuclear weapons which have already been placed there. The significance of the UN General Assembly resolution of October 17, 1963 lies in the very fact that it blocks the access of nuclear weapons and other weapons of mass annihilation to outer space and celestial bodies.

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[61]. *New York Times, October 5, 1963.*

[62]. *See Pravda, October 22, 1963.*

[63]. *New York Mirror, October 5, 1963.*

[64]. *ibid.*

Thus, the Moscow Treaty and the UN General Assembly resolution on nonlaunching of objects carrying nuclear weapons into orbit laid the good beginning towards imposition of a ban on using outer space for military purposes.

The Soviet Union is making maximum effort for solving the urgent international problems, mainly for solving the problem of disarmament.

CHAPTER IV

PROBLEMS OF INTERNATIONAL LAW CONCERNING RESCUE OF THE CREW OF SPACESHIP IN THE EVENT OF ACCIDENT, DISASTER OR FORCED LANDING

Flights of the first Soviet and American cosmonauts ended in happy return to the earth. More complicated flights are, however, yet to be performed. That is why the scientists and engineers are fervently working over the means of rescuing the crew of the spaceship in the event of an emergency at any stage of the space flight upto its descent and landing on ground or on the sea [I].

From the viewpoint of the requirements of the rescue system, the space flight can be divided into three phases:

1) launching and active part of the flight in dense atmospheric strata upto a height of 75 km;

2) flight beyond dense atmospheric strata in course of ascent, location in orbit and descent;

3) flight in the atmosphere at a height less than 15 km while descending and landing.

In the first phase of active flight in dense atmospheric strata the catastrophic situation may occur mainly due to explosion of the carrier rocket. In the event of such a situation at this phase of the flight, the crew is rescued either by separating the entire spaceship totally from the carrier rocket or by separating the fore part of the ship (detachable head capsule). In the event of emergence of catastrophic situation, members of the crew can easily move over to the head capsule. The spaceship or its head capsule, while separating, must acquire such acceleration that it may move away from the carrier rocket to a safe

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1. Lopatin, R.N., Sredstva spaseniya kosmonavtov (Means of rescuing the Cosmonauts), "Aviatsiya i Kosmonavtika", 1965, No.2, pp. 82-86.

distance. The rescue system also envisages the situation when due to accident the rocket engines cannot be shut off. In this case the detachable part must outdistance the rocket or must move aside and allow the rocket to move ahead. A catapult chair in the form of a capsule is not useful in this case in view of the difficulty of forcing it out of the splinter zone, specially while catapulting at the launching pad.

The detachable part of the ship becomes stabilized and carries out certain manoeuvre during the period of catapulting (2-3 seconds). This manoeuvre while catapulting at the pad must exclude the possibility of the detachable part falling within the splinter zone of explosion of the carrier rocket. While catapulting at the active part of the trajectory and at high dynamic pressure, the task is to avert collision with the carrier rocket after the catapult engine stopped working. The detachable part of the ship must ensure protection of the crew against surplus pressure and damage from splinters in case of explosion of the rocket and also against low atmospheric pressure at a great height. It must have effective aerodynamic form in order to reduce acceleration to admissible human limit.

While flying beyond the dense atmospheric strata rescue can be effected without leaving the spaceship. This can be done by several ways; for example, by dividing the cabin into two or three hermetically sealed compartments so that in the event of fire, breakage by the meteorites or failure of hermetical sealing due to some other reason, the members of the crew can take shelter in the compartment which has not been damaged; by duplicating and decentralizing vitally important systems, by using universal systems. This can also be effected by use on the part of the members of crew of various means for eliminating damage and by the application of medicaments which enhance endurance of the members of crew. Thus, for example, the admissible dosage of radiation can be doubled and hence the weight of shielding material can be reduced.

The return to the earth can be effected in the spaceship itself, in the detachable cabin or in another (rescue) ship. The detachable cabin must have suitable engine installation for descent from the orbit and manoeuvre, must be equipped for the entry into the atmosphere and must provide the necessities of life

While coming down from the height of 15 km and landing, the rescue system must ensure quick removal of the members of crew from the spaceship and their safe landing. usual ejecting chairs, chair - capsules and detachable head capsules are useful for this purpose.

In the event of forced landing of the crew of spaceship on the earth, the crew must possess a special portable emergency kit. It contains every thing required by a man who may find himself in the uninhabited Antarctica or tundra, in the tropical virgin jungles or taiga, in the scorching desert or in the boundless expanse of the ocean. The portable emergency kit contains special radio equipment, stock of foodstuff, water, chemical sprayer for the sea water, pneumatic boat and many other things.

However, it is not sufficient to provide for happy landing of the cosmonauts who have become victims of an accident. They should be searched out, necessary help should be given to them and efforts should be made to return them to their motherland[2]. On December 13, 1963 the UN General Assembly approved the Declaration of Legal Principles of the Activities of States in the Field of Exploration and Uses of Outer Space 1962 (XVIII).

This Declaration contains article 9 which reads: "The States recognize the cosmonauts as the envoys of mankind in outer space and render them all possible help in the event of accident, disaster or forced landing on the territory of a foreign State or on the open sea. The cosmonauts who make such forced landing must be in safe custody and immediately returned to the State with which their spaceship is registered".

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2. *See Cheprov, I.I., Pravovoe regulirovanie deyatel'nosti v kosmicheskom prostranstve (Legal Regulation of the Activities in Outer Space), "Kosmos i mezhdunarodnoe sotrudnichestvo", Izd-vo IMO, 1963, pp.59-67; Osnitskaya, G.A., Osvoenie kosmosa i mezhdunarodnoe pravo (Conquest of Outer Space and International Law), pp.65-67; Zhukov, G.P., Mezhdunarodnoe sotrudnichestvo po spaseniyu kosmonavtov (International Collaboration on Rescue of Cosmonauts), "Aviatsiya i kosmonavtika", 1964, No.10, pp.41-44.*

Simultaneously with the Declaration of Legal Principles, the UN General Assembly adopted the resolution 1963 (XVIII) on International Cooperation in using outer space for peaceful purposes in which it authorized the UN Committee on Outer Space to adopt measures for immediate preparation of a draft international agreement about assistance to cosmonauts, and spaceships, and about their return. It was expected that the principle of rendering help to cosmonauts in the event of accident, disaster or forced landing, proclaimed in the Declaration, would find further development, clarity and concrete expression in such international agreement.

The Institute of International Law in a resolution dated september 11, 1963 "Legal Regime of Outer Space" acknowledged that the States must take necessary steps for conducting mutual collaboration when it becomes necessary to render help to cosmonauts and return them quickly after any forced landing or their rescue [3]. The 52nd conference of the Interparliamentary Union, in a resolution dated September 20, 1963, pointed out the necessity of concluding in the earliest possible time an international agreement on rendering help to spaceships and their crew in the event of forced landing [4].

The Soviet Union suggested as early as March 1962 [5] the necessity of concluding an international agreement on rescuing cosmonauts and their spaceships which landed due to accident and in June 1962 introduced the draft agreement [6] for the consideration of the first session of the Judicial Subcommittee of the UN Committee on Outer Space. The USSR Delegation suggested to the delegation of the USA to introduce jointly the abovementioned draft of the international agreement for the consideration of the Judicial Subcommittee. The US delegation, however, declined this suggestion. The USA then suggested to work out a document on measures for rescuing cosmonauts and returning space objects in the form of a resolution of the UN General Assembly. The USA justified their unwillingness to conclude an international agreement on rescuing cosmonauts and returning their spaceships by way of constitutional difficulties in concluding treaties with other countries.

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[3] *See The Legal Regime of Outer Space. September 11, 1963. Resolution adopted by the Institute of International Law at its Session at Brussels (September 3-12, 1963) "Annuaire de l'Institut de droit international", Bale, t. 11, 1963, p.371 (Further: "Annuaire de l'Institut de droit international").*

[4] *See "Sovremennye problemy kosmicheskogo prava" (Contemporary Problems of Space Law), pp. 392-393.*

[5] *See Pravda, March 21, 1962.*

[6] *See UN document A/AC.105/C.2/L.2.*

The first session of the Judicial Subcommittee failed to arrive at any agreed opinion on this problem. No Substantial progress on the question of rescuing cosmonauts and returning spaceships was made at the second session of the Judicial Subcommittee, held in April - May 1963 in New York. While discussing this problem at the XVIII session of the UN General Assembly, the General Assembly supported the USSR proposal that problems connected with operations for rescuing cosmonauts and returning spaceships should be regulated by a special international agreement. At the third session of the Judicial Subcommittee, held in March (first part) and in October (second part) 1964, the Soviet Union introduced new proposals on this problem.

The main provisions of the version of the Soviet draft agreement on rescue, submitted in march 1964 [7], received wide support in the Judicial Subcommittee. Certain wishes and observations were expressed in the course of discussion over the draft. Guided by the desire to facilitate solution of the problem, the Soviet Union presented the second version of the already examined draft of the agreement on rescue [8] for the consideration of the third session of the Judicial Subcommittee in October 1964. It incorporated the wishes and observations expressed while discussing the former draft.

The Soviet draft agreement presented before the UNO envisaged necessary steps to be taken by the States for rescuing crew of a spaceship and rendering necessary help in the event of accident, disaster or forced landing, as well as for returning, as early as possible, the members of crew to their motherland. The Soviet draft agreement mentioned return of spaceships, satellites and containers, together with articles contained therein, to the State which launched them. The preamble and a number of articles of the draft of the next international agreement were based on the corresponding provisions of the Soviet draft on which preliminary understanding was reached in october 1964 at a non-official working conference concurrent with the third session of the Judicial Subcommittee of the UN Committee on Outer Space [9].

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[7] *See UN document A/AC/AC. 105/C. 2/L. 2/Rev. 1.*

[8] *See UN document A/AC. 105/C. 2/L. 2/Rev. 2.*

Together with the draft agreement on rescue submitted by the USSR, the UNO discussed the drafts submitted by the USA [10] and also by Australia and Canada jointly [11].

These three draft agreements were discussed at the fourth Session of the Judicial Subcommittee of the UN Committee on the Uses of Outer Space for Peaceful Purposes, held in New York from September 20 to October 1, 1965 [12]. The Subcommittee took into consideration the preliminary accord reached on certain provisions of the draft agreement on rescue at the nonofficial working conference during the second part of the third session of the Subcommittee in 1964. The fourth Session of the Subcommittee discussed some other provisions which should be embodied in the draft agreement on rescue. At this stage emerged substantial differences on the question relating to conditions of return of foreign spaceships and their crew which fell on the territory of some other State as a result of accident.

The discussion of the draft agreement on rescue at the fourth session of the Judicial Subcommittee did not result in any understanding with regard to new provisions besides those which had already found preliminary accord in 1964. In view of this,

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9. See UN document A/AC. 105/21, Appendix III, pp. 1-6.

10. See UN document A/AC. 105/C. 2/L. 9.

11. See UN document A/AC. 105/21, Appendix I, pp. 11-16.

12. Piradov, A. S., Kosmos dolzhen byt' mirnym ! (Outer Space should be Peaceful !), "Sovetskaya Rossiya", November 27, 1965.

the Subcommittee decided to prolong further examination of the provisions which are to be incorporated in the draft agreement on rescue at its subsequent sessions. The UN General Assembly in a resolution 2130 (XX) dated December 20, 1965 expressed the desire to continue work on framing the draft international agreement on rescue of the crew of spaceships. The international agreement on rescue must consider unforeseen situations and difficulties in which the crew of the spaceship in flight may find themselves. The catastrophic situation in space flight may arise due to explosion of the carrier rocket, loss of traction at the start, great instability, deviation from the marked trajectory, loss of traction in flight, failure of the control system, fire on board the spaceship, damage to the hermetic sealing of the cabin, breakage of the cabin by meteorites, failure of the system for supplying vital necessities, failure of the auxillary power installation, failure of the retardation installation and lastly, sickness of the members of crew.

All these catastrophic situations present a serious threat to the life of the crew of the spaceship. Keeping in view the possibility of the emergence of such situations and the necessity of averting the ensuing consequences, the Soviet draft agreement envisaged that each contracting State must render all possible help to the crew of spaceships in the event of accident, disaster or forced landing (clause I of the article I of the Soviet draft). Similar provision for rendering help was also incorporated in the draft agreement submitted by Australia and Canada on October 20, 1964[13].

The US draft envisaged that such help should be rendered, if the launching State does not request otherwise. Such reservation minimized the importance of the pledge to render help and rescue the cosmonauts, because it provided the ground for interpreting that the State launching the spaceship may reject the help of other States for rescuing the crew of its spaceship.

The obligation of rendering all possible help to the crew of spaceships in the event of accident, disaster or forced landing means utilization on the part of each State of all available devices for this purpose. It would be advisable to enumerate in the draft

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13.See UN document W/9. 1/30.

agreement on rescue an approximate list of devices for rendering help which should be used (radio equipment, optical equipment, means of communication, various rescue devices) as well as rescue devices which may be fabricated in future.

In the course of discussion on the problem of rendering help to the crew of spaceships in the working group of the Judicial Subcommittee (October 1964) an opinion was expressed that such help should be given to all who are in need of it, irrespective of the fact whether their countries are party to the agreement [14].

The crew of spaceship will, undoubtedly, try to inform the earth through radio about the troubles detected in the course of space flight. Usually such signals will be picked up by the tracking stations of that State which has launched the spaceship. It is, however, not excluded that in some cases the distress signal can be picked up much earlier by the radio stations of another State or even exclusively by them. A State having the facilities of telemetric systems and optical equipment for observation may detect that a foreign spaceship has met with an accident or was in a disastrous situation. Further observation of the movement of such a spaceship may establish the place of expected or already made forced landing. The possibility of such incidents should be taken into consideration by the future international agreement on rendering assistance to the crew of spaceships.

A preliminary understanding on the text of the corresponding article in the draft of the future agreement was reached in october 1964 at the third session of the Judicial Subcommittee, according to which every signatory State to the agreement, on receiving information of discovering that the crew of a spaceship belonging to another State has met with an accident or is in a disastrous situation or has made forced landing on any place on the surface of the earth (on the territory under the jurisdiction of the State, in the open sea or at any other place beyond the jurisdiction of the State), shall do every thing possible in order to inform about the accident immediately to the State which had announced the launching of the spaceship and also inform the

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[14] *See UN document A/AC. 105/21, Appendix IV, p. 3.*

Secretary General of the United Nations as well [15]. This provision corresponds with article 2 of the Soviet draft agreement.

In catastrophic situations it is very difficult and some times it is impossible to make forced landing precisely at the place earmarked for the same. In similar circumstances it is quite probable that cosmonauts may make forced landing on the territory of another State. The text of the article of the draft agreement on rendering help to the crew of spaceship, which found accord in the working group of the Judicial Subcommittee, envisages that in similar circumstances the foreign State will immediately take all available measures for rescuing the crew of spaceship and render him the necessary help. The State announcing the launching of the spaceship and the Secretary General of the United Nations should be informed about the measures taken in this regard and their results [16]. The help rendered by one State in case of necessity to the crew of spaceship belonging to another State should in no way differ from the help which would be rendered to the crew of its own spaceship[17].

It is quite possible that the State on the territory of which the crew of a foreign spaceship has made forced landing may not possess the technical devices required for search and rescue (for example, marine fleet or helicopters). The acceptable part of the draft agreement takes this into consideration and mentions the right of a State undertaking rescue operation to ask for help from the State which announced the launching of the spaceship. Under such circumstances joint rescue operations will be conducted under the guidance and control of the State on the territory of which the crew of the spaceship has made the forced landing [18]. These agreed provisions of the draft agreement are based on the proposals of the Soviet Union. These proposals were drafted on the basis of suggestions made by the representatives of Austria, Lebanon, Sweden and Japan at the first part of the third session of the Judicial Subcommittee.

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[15] *See UN document A/AC.105/21, Appendix III, p.3.*

[16] *ibid., p.4.*

[17] *See UN document A/AC.105/21, Appendix III, p.4.*

[18] *ibid.*

In the course of discussion in the Judicial Subcommittee on the question of help to be rendered to the crew of spaceship making forced landing on the territory of a foreign State, the corresponding provisions of the draft agreement on rendering help to the astronauts, submitted by the USA, were subjected to criticism [19]. According to this draft, the State or the international organization launching the spaceship would assume the right to take on the territory of another State, where the crew of spaceship has made the forced landing, any measure for rendering help as the situations may dictate (clause 2 of article 2).

The delegations of the UAR, Lebanon, Australia, Canada and a number of other countries pointed out that in accordance with the principle of respecting the sovereignty of States only the State on whose territory the crew has made forced landing should decide what measures are to be taken for rendering help[20]. In the opinion of the delegations of these countries, help from the State announcing the launching of spaceship should be sought only in case of extreme necessity.

The corresponding text of the article of the acceptable part of the draft agreement on rendering help to the crew of spaceships embodies the opinion of the overwhelming majority of countries represented in the Judicial Subcommittee of the UN Committee on Outer Space.

In cases when the place of forced landing by the crew of a spaceship beyond the territory of some State is exactly known and this place is situated in a region which can be approached quickly by the rescue devices of the State launching the spaceship, the State may do even without foreign help. It is quite possible that the crew of spaceship may make forced landing in the far distant region of open sea or in the regions of the Antarctica which are difficult to reach. In such circumstances it is quite natural to expect that the State announcing the launching of spaceship will request other countries to organize joint operations for search and rescue of the crew of spaceship.

19.See UN document A/AC.105/C.2/L.9.

20.See UN document A/AC.105/21, Appendix IV, p.6.

The Soviet draft agreement of 1964 envisaged that these operations should be guided by the State announcing the launching of spaceship or by any other State whose cooperation would be sought in this matter[21]. At the fourth session of the Judicial Subcommittee (September 20 - October 1, 1965) the Soviet Union suggested a compromise formula on this problem. Article 4 of the revised Soviet draft agreement speaks no more about guidance; it speaks about the general coordination of rescue operations by the State announcing the launching of spaceship. These operations should be carried out in accordance with recommendations and technical advices of the State announcing the launching [22]. It is quite evident that the guidance or general coordination of rescue operations by the State announcing the laucnhing of spaceship is of great significance for their successful conduct. Possessing essential technical information about the particular spaceship, this State should chalk out the course of rescue operations and also determine the method of contacting the spaceship in the course of this operation.

After rescuing the crew of spaceship who made the forced landing on the territory of a foreign State or at any other place not under the sovereignty of any State, and have been picked up by a foreign ship, aircraft or by some other means, arises the question of their return to the motherland.

The Soviet draft agreement speaks about the earliest possible return to the motherland of the crew of spaceship, launched in accordance with the Declaration of Legal Principles regulating the Activities of States in the Field of Exploration and Uses of Outer Space, which met with an accident or disaster or made forced landing on the territory of a foreign State or was rescued by a foreign State at some other place.

However, what is to be done, if the condition of health of any member of the crew does not permit any movement on his part? In such circumstances, we think that the State, in whose territory is found the ailing member should provide care for him and give the authorities of his country the facilities for

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21.See UN document A/AC.105/C.2/L.2/Rev.2.

22.See UN document A/AC.105/29, Appendix I, p.3.

sending medical personnel and rendering any other necessary help. The question about the procedure for and time of return of such member of the crew to the motherland is to be decided by the authorities of the country whose citizen he is.

The collaboration of States in rendering help to daring explorers of outer space is intended to secure their life against danger, protect their health and has paramount importance from the point of view of humanitarian aims. At the same time, collaboration of States in conducting search and rescue of space objects is also of great importance from the point of view of science. That is why the Soviet draft agreement, submitted in october 1964 for the consideration of the Judicial Subcommittee, formulated the general obligation of the States thus: "To assist international collaboration in the conduct of search and rescue of space objects launched in accordance with the Declaration of Legal Principles regulating the Activities of States in the Field of Exploration and Uses of Outer Space" (clause 2 of article I).

Though all States are interested in search for space objects, however, not all States are in a position to allocate resources for this purpose or take part in their searches. The Soviet draft agreement spoke only about assistance to international collaboration for search and rescue of the space objects. Each State should independently decide the question of form and extent of assistance to be rendered to such international collaboration.

Quite probable is such incident when a State obtains information or discovers that a foreign space object or its component parts have fallen on the earth. In such circumstances it is not important to find where fell such space object- on the territory of the State discovering it, in the open sea or at any other place beyond the jurisdiction of sovereignty of some State. It seems quite natural that a State on discovering the foreign space object should immediately inform the State announcing its launching and also the UN General Secretary about the same. Exactly such a way of solution was suggested in the Soviet draft agreement (clause I of article 6) and this was the basis of the acceptable clause in an article of the future international agreement.

However, what is the fate of the spaceship, satellite and container as well as the equipment or the parts contained therein, which have been discovered by a foreign State on its territory or found by this State at some other place?

Two contradictory viewpoints regarding the property right of the State on space objects, launched by it into outer space, have been mentioned in the Western literature. In some cases attempts were made to prove that a State by virtue of the fact of launching the object into outer space as though "abandons" or "discards" it. In the opinion of the supporters of this viewpoint, the object launched into outer space loses its State affiliation and becomes "no one's property". It was logically deduced from this premise that whoever picks up such an object after its return from outer space to the earth, becomes its owner. Argentinean jurist A. Cocca compares the artificial satellite of the earth moving along an orbit with a bottle floating in the open sea; the space object fallen on the earth with a meteorite fallen on the earth. According to the other viewpoint, the space object maintains its State affiliation not only in outer space, but also after its return to the earth.

The article of R. Mankevich, Legal Adviser to the International Organization of Civil Aviation, published in the French Annual on International law in 1959, points out that the very fact of a space object going beyond the atmosphere or even beyond the sphere of gravity should not affect the property right of the State launching it. A conclusion was deduced from this premise that the State has the right to demand the return of its space objects together with its equipment in the event of its fall on the territory of a foreign State. Similar viewpoint was expressed by the Polish jurist M. Zhilich. The Soviet jurists from the very beginning have been upholding the necessity of international recognition of the property right of the State on the space objects launched by it and of their return to the owner in the event of forced landing on the territory of a foreign State.

Interesting observations on this problem were made by the Institute of International Law. The resolution "The Legal Regime of Outer Space", adopted by the Institute on September 11, 1963, mentions that " not a single object should be launched into outer space without the permission of the State. Each State is under the obligation to ensure that the uses of any space object launched with its permission conformed to applicable norms of international law" (article 2).

In accordance with the resolution, "any launching of space object should, without delay, and with the mention of coordinated data, be registered by the State, which has accorded permission for its launching, with the United Nations Organization or with the body specially set up for this purpose" (article 3).

The resolution draws attention to the fact that each space object "should bear identification marks indicating its affiliation and use call signs which would enable to eastablish which State has permitted its launching" (article 4).

In the opinion of the Institute of International Law, every space object launched remains under the jurisdiction of the State which permitted its launching (article 5)[23].

On the basis of this, the Institute of International Law expressed the opinion that the International agreement should envisage suitable measures for returning to the State the space objects which were launched with its permission and bearing identification marks indicating their affiliation and on return to the earth were found on the territory of another State.

The Declaration of Legal Principles regulating the Activities of States in the Field of Exploration and Uses of Outer Space for Peaceful Purposes, approved on December 13, 1963, brought a certain clarity to this problem. In accordance with article 7 of this declaration, "property rights on space objects launched into outer space and on their component parts remain unaffected while they are in outer space and after their return to the earth. Such objects or their component parts, detected somewhere beyond the territory of the State should be returned to the State, with whom they are registered, but such State, on demand, should produce, prior to such return, identification data". Clause 2 of article 6 of the Soviet draft agreement referred to the return of foreign spaceships, satellites and containers, launched in accordance with the Declaration of Legal Principles regulating the Activities of States in the Field of Exploration and Uses of Outer Space for Peaceful Purposes, as well as equipment contained therein to the State, which announced their launching, at its request.

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[23] *"Annuaire de l'Institut de droit international", Bale, t. 11, 1963, p. 371.*

In order to return a foreign space object to the source of its origin, first of all, it has to be determined whether this one is that particular object launching of which was announced before According to the established practice, launching of a space object can be communicated through an announcement in the press or over the radio and registration of the launching with the United Nations Organization as stipulated in the UN General Assembly resolution 1721 (XVI).

In this resolution the UN General Assembly appealed to the States launching space objects into orbit or farther "to keep the Committee on Uses of Outer Space for Peaceful Purposes posted, without delay, with information through the Secretary General of the UNO for the registration of the launchings [resolution 1721 (XVI), clause I]. The Soviet Union strictly observes the requirements of this resolution by regularly communicating to the UNO about the space launchings conducted by her. If two or more States participate in the launching of a space object, then the question arises: Which State should report about this launching ? In the course of discussion over this problem in the Working Group of the Judicial Subcommittee of the UN Committee of Outer Space in October 1964, an opinion was expressed that in case of joint launching the participant States should decide among themselves which State should make such communication[24].

State affiliation of space objects is determined on the basis of national identification marks on them. The Soviet Union, for example, inscribes on the space objects to be launched by her a pennant together with appropriate inscriptions and her State Emblem[25]. When such identification data are available, it is not at all difficult to solve the problem as to whom the detected foreign space object or its parts may be returned.

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[24] *See UN document A/AC. 105/21, Appendix IV, p. 5.*

[25] *See Cheprov, I. I., Pravovoe regulirovanie deyatel'nosti v kosmicheskom prostranstve (Legal Regulation of the Activities in Outer Space), p. 64.*

What is to be done, if the identification marks can not be found on the space object or on its parts and hence their State affiliation cannot be established? In case of presence of the crew on board the space object, the State affiliation of this object can be established from the evidence of the members of crew. Establishment of the State affiliation of a space object becomes much more difficult, when it has no crew on board.

In such circumstances, the State which announced the launching of the space object and asked for its return, should, on demand by the State detecting this object or any part thereof, communicate to the latter the identification marks. The Soviet proposal on this problem has been taken as the basis of the text of the acceptable clause of the article in the draft agreement (clause 5 of article 6) which mentions about the production of identification data about such object as and when required.

The question of return of foreign space object does not raise any doubt when the State launches them in accordance with the Declaration of Legal Principles regulating the Activities of States in the Field of Exploration and Uses of Outer Space. This question has to be decided in a different way in cases when the space objects are launched not in accordance with the abovementioned Declaration. It is quite natural that the obligation of returning the space object to the State launching it should not be extended to such cases.

Hence, a space object should not be subject to return, if it is launched by a nongovernment agency without permission of the State concerned, as it is banned by the Declaration (article 5). The space object should also not be subject to return, if the provision of the Declaration with regard to appropriate international consultations before conducting potentially harmful experiment is not observed.

We think that the principle of nonreturn of foreign space objects should cover all activities in outer space which are inimical or dangerous for other States or for the other State on whose territory such object has been detected. According to the just remark of the Soviet jurist I. I. Cheprov, "any other solution of this problem would lead to an absurd proposition that the State which has been compelled to suffer damage from the space activity of another State is also obliged to assist in this activity"[26].

How, for example, should behave the State on whose territory will fall an espionage satellite having on board film containing shots of important strategic objects situated on the territory of this State? We think that the State which detects such space object on its territory is empowered to confiscate it. Return of espionage satellite together with the equipment and collected reconnaissance material contained therein would cause serious damage to the security interest of the State returning it. Obligation to return all space objects, without making any distinction, would be contradictory to the very idea of international collaboration for the peaceful uses of outer space.

That is why in all Soviet proposals on this problem the obligation of returning the foreign space objects was extended only in case of peaceful activity in outer space. The Soviet draft agreement, submitted to the Judicial Subcommittee of the UN Committee on Outer Space in June 1962, mentions that "space apparatus, on which equipment for collecting reconnaissance information on the territory of another State has been detected, are not subjected to return" (article 7, section II)[27].

According to the Soviet draft agreement, submitted to the Judicial Subcommittee in March 1964, only those foreign space objects which "were launched for the purpose of peaceful exploration and uses of outer space" would be subjected to immediate return[28].

The content of this article of the Soviet draft conformed to the Declaration of Legal Principles, which proclaims that the activities of the States in outer space should be carried out" in accordance with international law, including the UN Charter for maintaining international peace and security and for developing international collaboration and mutual understanding".

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[26] *ibid., p. 66.*

[27] *UN document A/AC. 105/C. 2/L. 2.*

[28] *UN document A/AC. 105/C. 2/L. 2/Rev. 2.*

In view of the fact that the USA still considered that the concept of "uses of outer space for peaceful purposes" covered also the activities of military (nonaggressive, from the viewpoint of the USA) nature, the new Soviet draft agreement, submitted to the Judicial Subcommittee in October 1964, stipulated the conformity of the launching of space objects to the provisions of the Declaration of Legal Principles regulating the Activities of States in the Field of Exploration and Uses of Outer Space as the condition for the return of foreign space objects.

One should also take into consideration the fact that American literature contains statements which approve the Soviet stand on the problem of returning space objects. For example, American jurist D. MacMagon wrote in 1962 that if a satellite carried out forbidden activities and landed in accident on the territory of a State against which such activities were conducted, then such a satellite can be confiscated[29].

From our viewpoint, the serious lacuna in the draft agreement submitted by the USA and also of the joint draft of Australia and Canada lies in the fact that obligation of returning foreign space objects is imposed without any reservation. They propose thereby to return to the owners safe and intact even those space objects which were not launched in accordance with the provisions of the Declaration of Legal Principles and cause damage to the vital interests and security of the State which rendered help.

The question about the conditions for returning foreign spaceships and their crew which have landed in accident on the territory of some other State evoked animated discussion at the fourth session of the Judicial Subcommittee of the UN Committee on Uses of Outer Space for Peaceful Purposes, held in New York from September 20 to October 1, 1965.

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29. MacMagon, D., Pravovye aspekty kosmosa (Legal Aspects of Outer Space), "Sovremennye problemy kosmicheskogo prava", IL, 1964, p. 278.

The Soviet Union proceeded and still proceeds from the assumption that only those foreign spaceships and their crew, which were launched in accordance with the Declaration of Legal Principles regulating the Activities of States in the Field of Exploration and Uses of Outer Space, should be subjected to return. The USA insisted on unconditional return of all foreign spaceships and their crew. But this position was supported by a few States only. The representatives of the socialist countries supported the provisions of the Soviet draft agreement on rescuing the cosmonauts and spaceships in the event of accident, disaster or forced landing.

The representatives of such countries as Mexico, Argentina, Lebanon, spoke in the Judicial Subcommittee against the obligation of unconditional return of foreign space objects and their crew. They spoke particularly in favor of the proposition that the agreement on rescue should be extended only to such space objects and their crew, which were launched for the purpose of peaceful exploration and uses of outer space. In this context they emphasized that the Declaration of Legal Principles, as evident from its preamble, mentions only about the activities connected with exploration and uses of outer space for peaceful purposes. The representative of Australia, while supporting the US stand called the concept of peaceful exploration and uses of outer space very broad and announced that this concept can not be the appropriate criterion for solving the problem of returning space objects and their crew.

The State, on whose territory landed the foreign space object or its part, may come across difficulties in carrying out operations for finding them out and returning them. In such circumstances the help of the State which announced the launching of this object may prove helpful. Considering this aspect, the State, on whose territory landed such a foreign space object or its part, may request the State, which announced the launching , to take part in carrying out operations for finding them out and returning them. According to the agreed text of the article of the draft agreement, joint operation for this purpose should be conducted under the guidance and control of the State on whose territory landed the space object or its part (clause 4 of article 6)[30].

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[30] *See UN document A/AC. 105/21, Appendix III, p. 5.*

In such cases when the space object has on board dangerous or harmful matters, the State on whose territory it landed may inform the State which had announced its launching about this. The latter must take quick and effective measure for removing this object or its part from the foreign territory or for rendering them harmless by some other means. These measures are also to be implemented under the guidance and control of the State on whose territory landed the foreign space object or its part.

The draft agreement, submitted jointly by Australia and Canada to the Judicial Subcommittee on October 20, 1964, contained these provisions[31]. They are incorporated in the text of the acceptable part of the draft agreement (clause 3 of article 6).

Return of foreign space objects to the State, which announced their launching, involves certain expenditure. According to the Soviet draft agreement, this expenditure should be reimbursed by the State to whom the space object has been returned. The Soviet draft agreement proceeds from the assumption that help for rescusing the crew of a spaceship and for returning them to their motherland should be rendered gratis, as in the case of saving human life under maritime law.

The possibility of launching crew of spaceships as well as space objects by the international intergovernmental organizations is not excluded in the near future. The Soviet Union proceeds from the assumption that the provisions of the agreement on rescue should be applicable in regard to space activities conducted by such international organizations[32].

A spaceship can be launched from the territory of any State and can, in the event of accident or disaster, make forced landing on the territory of any State. Hence an international agreement on rescue should be universal in nature. Keeping this in view, the Soviet Union suggested to draft the concluding resolutions of the agreement on rescue corresponding with the concluding resolutions of the Moscow Treaty on banning Tests

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[31] See UN document A/AC.105/21. Appendix I, pp.11-16.

[32] ibid., p.16.

of Nuclear Weapons in Three Media. Accordingly, the Soviet Union proposed to make the agreement on rescue an open one for signature of all States of the World. The Governments of the USSR, the USA and of some neutral States were proposed as the depositary States.

Main provisions of the Soviet draft agreement on rescue found wide support in the United Nations Organization. The Soviet draft laid a good foundation for working out, within the UN framework, the draft international agreement on rendering help to the crew and on return of the spaceships.

At the same time the question arises: What should be the guidelines for the States before such an international agreement is concluded and comes into effect?

In connection with launching and return to the earth of the second Soviet spaceship, the newspaper "New York Times" wrote in an editorial article on August 21, 1960 : "Let us suppose that a man, launched into orbit from the country A, landed on the territory of the country B. What is he, a hero or a criminal? Should he be punished for entering into the territory of a foreign State without any fault and treated as an aggressor, or showered with honor and care in that country where he appeared by such unusual way? "[33].

Keeping in view the possibilities of landing by the crew of spaceship on the territory of a foreign State, the Japanese jurist F. Ikeda drew attention to the condition that " in accordance with contemporary international law the sovereign State exercises full and exclusive jurisdiction within its territory". Hence, the spaceships and the cosmonauts, who have landed on the territory of another State, come, in his opinion, within the jurisdiction of the latter, and the State, which launched them, can demand their return only on the basis of appropriate bilateral or multilateral international agreements. In this context, F. Ikeda proved the necessity of concluding an international agreement on rendering help to the crew of spaceships and on returning them and the spaceships. Soviet jurist G. A. Osnitskaya considers that in the absence of special norms

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33. *New York Times, August 21, 1960.*

of space law the problems connected with the landing of the crew of a spaceship on the foreign territory should be solved in accordance with the general norms of international law. In the opinion of G. A. Osnitskaya, if the landing was deliberate in violation of the territorial sovereignty of the State, it is an illegal act, responsibility for which lies with the person who has committed such act and with the State which has sent the spaceship for this purpose[34]. However, spaceship with crew on board or without crew may land on the territory of a foreign State due to accident, error or catastrophic situation. In such circumstances G. A. Osnitskaya permits the chance of application of norms established by national legislation and international agreements for aircraft in distress. It is well known that in accordance with the established international practice the problems connected with rescue of the victims of distress in the sea and in the air are regulated by special bilateral and multilateral international agreements. According to the 1958 Convention on Open Sea, each State imposes upon the Captain of any vessel sailing under its flag, in so far as the Captain can do it, while avoiding serious danger to the vessel, crew or passengers, the duty:

a) to render help to any person detected in the sea whose life is in danger;

b) to rush at the highest possible speed to help persons facing death, if he gets the SOS that they are in need of help, in so far as such action on his part can be logically counted upon;

c) to render help, after collission, to the other vessel, its crew and passengers and in so far as possible, inform the other vessel the name of his vessel, port of registration and the nearest port of call (clause I of article 12)[35].

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[34] *See Osnitskaya, G.A., Osvoenie kosmosa i mezhdunarodnoe pravo (The Conquest of Outer Space and International Law), p. 66.*

[35] *See Molodtsov, S. V., Mezhdunarodnopravovyĭ rezhim otkrytogo morya i kontinental'nogo shel'fa (International Legal Regime of Open Sea and Continental Shelf), appendix I, Izd-vo AN SSSR, 1960, p. 327.*

The convention also imposes on the naval Powers the obligation of having effective rescue service and collaborating with the neighboring States in this regard (clause 11 article 12).

The 1944 Chicago Convention on International Organisation of Civil Aviation envisages that "each contracting State is obliged to adopt such measures for helping the aircraft suffering distress on its territory, which it finds practicable and to allow, under its own control, the owners of the aircraft or authorities of the State with which it is registered, to take such steps for help which may be necessitated by the circumstances. Each contracting State undertaking search for missing aircraft should collaborate in coordinated actions which may be recommended from time to time to implement the present convention "(article 25)[36]

More detailed provisions regarding rescue on sea and in air are incorporated in the International Convention on Protection of Human Life on Sea, signed in London on June 17, 1910; in the Convention on Combining Several Rules regarding Help and Rescue on Sea, signed in Brussels on September 23, 1910; in the Convention on Combining Several Rules regarding Help and Rescue of Flying Apparatus by Flying Apparatus on Sea, signed in Brussels on September 29, 1938; in the appendices to these conventions and in other international agreements concerning rescue on sea and on air.

The 1959 International Convention on Telecommunication gives absolute priority to SOS in case of disaster. In accordance with article 48 of the Convention, radio stations are obliged to accept on absolute priority basis the SOS and communication about disaster, from whichever source they may originate, and in the same way reply to these communications and immediately adopt necessary measures[37]. According to article 38 of the Convention, the International Telecommunication Services should give absolute priority to communications relating to security of human life on sea, on earth and in air, as well as to epidemiological communications of the World Health Organization[38].

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[36] *Quotation from Showcross, H.N., and K. M. Beaumont, Vozdushnoe pravo (Air Law), IL, 1957, Appendix, p.266.*

[37] *See "International Convention on Telecommunications, 1959", Geneva, 1960, p.35.*

The Radio Communications Regulations of 1959 contain in VII and VIII chapters detail provisions regarding use of radio communication in the event of distress and accident.

Special radio frequencies have been earmarked for carrying out rescue operations[39]. According to the Radio Communications Regulations of 1959, distress information should be broadcast on one of the two international distress frequencies (500 kilocycles, 2182 kilocycles) or on both these frequencies, or on any other frequency which can be used in the event of distress. Frequency 500 kilocycles is the international distress frequency in radiotelegraphy, and frequency 2182 kilocycles is the international distress frequency in radiotelephony. These frequencies should be used, according to the Radio Communications Regulations of 1959, by the stations of ships, aircraft and rescue devices, when these stations require help from marine services.

Any aircraft in distress transmits SOS over this frequency which is attended to by ground or mobile stations which can render help. If this SOS is meant for the mobile marine service, then it should be transmitted over the international frequencies 500 and 2182 kilocycles which have been specially earmarked for this. However, aircraft stations, which cannot transmit over these frequencies, should use any other frequency available at their disposal for drawing attention.

According to Radio Communications Regulations of 1959, aircraft stations can use the frequencies 121.5 megacycles, 156.30 megacycles and 156.80 megacycles, but exclusively in such circumstances when human life is in danger.

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[38] *ibid., p.32.*

[39] *"Reglament radiosvyazi 1959" (Radio Communications Regulations of 1959), Svyaz'izdat, 1961, clauses 1107, 1108, 1208, 1321, 1323 and 1324.*

In addition to the frequencies, earmarked by the Radio Communications Regulations of 1959, in the event of distress, accident and also for rescue devices, the Extraordinary Administrative Conference on Radio Communications, which was held on Geneva in 1963, selected the frequency 20.007 megacycles for search and rescue of cosmonauts and spaceships[40].

For facilitating the reception of SOS the transmission over all these frequencies is strictly regulated in order to reduce them to the minimum.

With a view to ensuring greater security of human life the Radio Communications Regulations provide for watch by the ground stations over the distress frequencies.

The Extraordinary Administrative Conference on Radio Communications in 1963 adopted a special resolution concerning spaceships in the event of distress and accident. The resolution draws attention to the fact that the number of flights of spaceships carrying man on board or of artificial satellites of the earth will, evidently, increase; that as a result of this, the possibility of such ships making forced landing somewhere on the earth in the event of accident cannot be neglected; that in such circumstances search and rescue of the crew as well as return of the ships create problems very similar to the problems faced in the event of distress and accident of aircraft and ships.

In view of the fact that Radio Communications Regulations of 1959, devoted to rescue, did not contain any reference to spaceships or their crew, the Extraordinary Administrative Conference on Radio Communications in 1963 decided that prior to review of these regulations the appropriate provisions laid down in chapters VII and VIII with regard to distress and

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40.See "Concluding Acts of the Extraordinary Administrative Conference on Radio Communications concerning Allocation of wave Bands for Space Radio Communications", Geneva, 1963, p. 17 (further "Concluding Acts of EACR").

accident should be applicable in the same degree to cosmonauts and spaceships[41].

In the event of distress, accident or forced landing, the crew of a spaceship is thereby authorized to use not only the frequency 20. 007 megacycles, specially earmarked for this purpose, but also the frequencies earmarked by the Radio Communications Regulations of 1959 for aircraft and ships in distress.

When the station of a spaceship in distress does not get reply to its communication transmitted through distress frequency, this communication can be repeated through any other frequency available at its disposal through which attention can be drawn.

The States should adopt necessary steps so that the radio stations located on their territories receive as the first priority the distress signals transmitted from the spaceship over the frequencies earmarked for this purpose by the Radio Communications Regulations.

Regularly operating services for monitoring marine and air communications can be primarily used for this purpose. Besides, a special monitoring service for ensuring reception of distress signal transmitted from the space object through radio-telegraph as well as radiotelephone can be organized at the request of the State which announced launching of the space object.

There is no doubt that the task of rescuing the crew of a spaceship will be much easier, if it will be equipped with a special apparatus which can, in the event of accident, bad state of health of the members of crew or in the face of any other danger, automatically transmit distress signals while making forced landing. These signals should mention that the crew of the spaceship are threatened with serious and inevitable danger and that they are requesting for immediate help. Distress signals for spaceships are so far the same as those for ground services (aviation, marine fleet), i. e., "M'AIDER" in radiotelephony and "SOS" in radiotelegraphy.

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[41] *See 'Resolution 2A regarding Spaceships in the Event of Distress and Accident. Concluding Acts of the Extraordinary Administrative Conference on Radio Communications concerning Allocation of wave Bands for Space Radio Communications", Geneva, 1963, pp. 166-167.*

The International Radio Communications Regulations of 1959 control the procedure for transmitting the calls and communications about distress in the following way. In order to communicate about distress through radiotelephony, it is necessary:

1. To transmit alarm signal for 30 seconds. The radiotelephonic alarm signal consists of two sinusoidal tones of sound frequency transmitted alternately. One tone must have the frequency of 2200 cycles per second, and the other - 1300 cps. The purpose of the alarm signal is to draw attention of the person on duty or put into action the automatic apparatus raising alarm. Transmission of such signal is used for announcing the impending distress call or communicating about the distress.

2. To transmit the following distress call: distress signal "May day"pronounced three times; the word "ici"; call sign or other identification of the spaceship in distress pronounced three times.

Call in the event of distress must get absolute priority over all other transmissions. All stations, which hear it, should immediately stop all transmissions, which may cause disturbance to the distress signal, and should continue to listen to the frequency used for transmitting call in the event of distress.

3. Following distress call, to transmit communication about the distress which consists of: distress signal "May day", name or other indication for the identification of the spaceship in distress, information about its location, information about the nature of distress and help sought, any other information that may facilitate rendering of this help.

After transmitting the communication about distress through radiotelephony, the spaceship may request for the transmission of appropriate signals to be followed by call sign or any other identification sign in order to give the radio homing stations the chance to determine the location of the ship. In case of necessity this request can be repeated after short interval.

In order to communicate about the distress on a spaceship through radiotelegraphy, it is necessary:

1. To transmit alarm signal which consists of a group of fourteen dashes transmitted in one minute. Purpose of the radiotelegraphic alarm signal is to put into action the automatic alarm devices in order to draw the attention of the operator at a time when no one is attending to the distress frequency.

2. To transmit distress call "SOS" with interval of two minutes.

3. To transmit distress call "SOS".

4. To transmit communication about distress which consists of: distress signal "SOS", name or other indication for identification of the spaceship in distress, information about its location, information about the nature of distress and help sought, any other information that may facilitate rendering of this help.

5. To transmit through radiotelegraph two dashes of a duration of 10 to 15 seconds each.

6. To transmit call sign of the station in distress.

In circumstances when saving of time is of great importance, the second part of this procedure (clause 2) or even the first and the second parts (clauses 1 and 2) can be omitted.

Transmissions, mentioned in clauses 5 and 6 for giving radio homing stations the chance to determine the location of the station in distress, can be repeated after short intervals, if it is necessary.

The Radio Communications Regulations of 1959 define also the procedure for confirming the receipt of distress communications and for exchange of communications in the event of distress.

Each radio station, which has monitored the alaram signal or distress signal from a spaceship, should continue to receive these signals till it obtains sufficient information necessary for raising alarm at the expected rescue zone. Besides, each radio station should in such circumstances, refrain from transmission that may disturb transmission of distress signals by a spaceship in danger.

If the transmission of distress signal has stopped, and location of the crew of the spaceship has been established, then the competent services of the State which guides the rescue operation may transmit the communication addressed to "all the stations", mentioning that normal work of radio communication can be resumed.

At the same time the States should take measures to prevent false and fraudulent distress signals and to detect the location of stations transmitting these signals.

English jurist W. Jenks proposed, in his report prepared on commission from the Institute of International law, to include in the International Agreement on rendering Help to the Crew of Spaceships the provision for mutual help of cosmonauts, by analogy with International Convention of 1960 on Protection of Human Life on Sea, which directs the captain of a marine vessel, on receipt of distress signal over radio, to rush to help the persons in distress "at the highest possible speed". Jenks points out that the level of technology and activities in outer space is not yet sufficiently high for practical implementation of this provision, but should not be forgotten because principles of space law are being enunciated not only for the present, but also for the future[42].

In accordance with this report, the Institute of International Law in the resolution "Legal Regime of Outer Space" of

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[42] *See Jenks, C. W., Le droit international des espaces celestes "Annuaire de l'Institut de droit international", Bale, t. 1, 1963, p. 342.*

September 11, 1963 mentioned that States should take measures which would ensure rendering of mutual help by the cosmonauts.

The report of the Dutch jurist D. Goedhuis, prepared in 1964 on commission from the International Law Association, raises the question of rendering help to marine vessels and aircraft by the crew of spaceship in the event of distress.

The 51st Conference of the International Law Association, held in August 1964 in Tokyo, in the resolution adopted draws attention to the importance of examining the problems of help and rescue which are related with activities on sea, in air and in outer space as a whole. This, however, in the opinion of the Association, should not exclude the adoption, as the first step in this direction of an international agreement on rendering help to the crew of spaceships and on returning them and the spaceships in conformity with the work which is being carried out in this field within the framework of the United Nations Organization. It should be noted that this viewpoint is not shared by all. For example, the Committee on Air and Space Law of the International Law Association in Federal Republic of Germany, at its session held in Cologne on June 6, 1964, opposed the idea of working out an international agreement in which problems of help and rescue related with the activities on sea, in air and in outer space would have been considered as one and indivisible.

The problem of rendering mutual help by the crew of spaceships may acquire great importance in future depending on the degree of conquest of the moon and other celestial bodies.

CHAPTER V

INTERNATIONAL RESPONSIBILITY FOR DAMAGE CAUSED BY ARTIFICIAL SPACE OBJECTS

The question of responsibility for damage caused by space objects should be studied in connection with the necessity of legal regulation of activities of States in outer space.

Remains of an American rocket, assigned for launching a guided satellite into orbit, fell on the territory of Cuba in the neighborhood of the town Olgin, in November 1960. Splinters of this rocket caused damage to the domestic cattle. A fragment of steel, nearly one meter in length, was discovered near the town Alivan-North in the Kapa province (South African Republic) in February, 1962. It fell near a farm. American experts established that the fragment was a part of the booster rocket "Atlas-109" which, on February 20, 1962, launched the spaceship of Glenn into the orbit. Parts of rockets also fell in other areas. It is clear that the question of responsibility for damage caused by space objects is one of the problems which require international legal settlement.

At the present stage of development of rocket technology, launching of objects into outer space should be considered as activities involved with the source of increased danger.

The Mexican jurist M. Siera Vazquez formulates this in the following way: "A State, which launches a space apparatus - Satellite or rocket — creates risk for all States. This State does not commit any crime against international law insofar as its right to launch is recognized; but if it causes damage, then the damage must be compensated"[1].

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[1] *Siera Vazquez, Otvetstvennost' v mezhdunarodnom kosmicheskom prave [Responsibility under International Space Law], "Sovremennye problemy kosmicheskogo prava", IL, 1963, pp. 339-340.*

Inherent possibility of causing damage, inspite of all precautionary measures, is the peculiarity of such kind of activity. Any damage, caused as a result of activities connected with the source of increased danger, should be compensated irrespective of presence or absence of guilt, i.e. even in the case of simple accident. Material liability is susually imposed if the person causing damage is found guilty. Guilt finds expression in intention and negligence. If a person causing damage did not act wilfully and did not show any negligence, then it is a case of so-called" accident", i.e., damage arising out of no guilt, for which, in case of activities not connected with the source of increased danger, material liability is not imposed. Guilt as the basis of liability for damage lies in the foundation of international agreements which regulate sea and air commercial shipping[2].

Liability for damage arising independently of guilt is usually defined as absolute. The conventions which regulate the use by a State of atomic energy for peaceful purposes are based on such liability. The problem of responsibility for damage caused by objects launched into outer space has its own specific peculiarities and complexities which must find appropriate reflection in international agreement on this problem.

The UN General Assembly, in its resolution 1963 (XVIII) of December 13, 1963, authorized the UN Committee on Outer Space and its Judicial Subcommittee to take measures for immediate preparation of the draft agreement on responsibility for damage caused by objects launched into outer space. This agreement should be based on the Declaration of Legal Principles regulating the Activities of States in the Field of Exploration and Uses of Outer Space, adopted by the UN General Assembly on December, 13, 1963 [resolution 1962 (XVIII)]. "Each State, reads clause 8 of the Declaration, which conducts or organizes launching of object into outer space, as well as each State, from the territory or installation of which the object .

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[2] *See, for example, the Brussels Convention of 1910 on collisions on the sea, the Brussels Convention of 1961 on Transportation of Passengers, the Warsaw Convention of 1929 on Air Transportation, the draft convention on Air collisions which was worked out in 1961 within the framework of the International organization of civil Aviation.*

is launched, bears international responsibility for damage caused by such object or by its components on the earth, in air space or in outer space to a foreign State, to its natural and juristic persons".

The provision of the Declaration that " in case of space activities of an international organization, the responsibility for implementing the principles of this Declaration rests with the international organization as well as with the member States". (clause 5) has great importance for working out the agreement on responsibility for damage.

It follows from the abovementioned provision that if damage is caused by an international organization, the responsibility for this lies with the international organization in question as well as with the States forming part of it. It should, however, be specially emphasized that the States which form part of this international organization and express protest against certain activities undertaken by such organization, should not be held responsible in connection with its activity.

The general principle of responsibility for damage, confirmed in the UN General Assembly Declaration 1962 (XVIII) of December 13, 1963, should be elaborated and given concrete shape in an appropriate international agreement.

At present, the UN Committee on Outer Space and its Judicial Subcommittee are examining the draft agreements on this problem submitted by Hungary, the USA and Belgium. In course of discussion over these draft agreements in the Judicial Subcommittee there emerged a general concensus that the responsibility for damage caused by launching of objects into outer space should be absolute, i. e. irrespective of guilt.

The Institute of International Law also defended absolute responsibility for damage caused by space objects. The resolution, adopted by the Institute on September 11, 1963, reads: "The State, with whose permission a space object is launched, bears responsibility for the damage caused by the object, even when there is no guilt" (article 13). Discussionover the problem of absolute liability in the Judicial Subcommittee of the UN Committee on Outer Space pointed out the necessity of envisaging in the agreement the instances when such liability will be exempt. Cases, when damage is caused as a result of collision between space objects, natural calamity, premeditated action, negligence or ommission on the part of the plaintiff State or natural and juristic persons whom it represents, are mentioned as such exception from the principle of absolute liability.

According to the concensus, liability for damage caused by space object on the earth and in the air space should be absolute[3]. There is no divergence in views on this problem in the Hungarian and American draft agreements. The problem of responsibility for damage caused in outer space, however, is solved differently in these draft agreements.

The proposal, submitted by the USA on November 7, 1962 at the first session of the Judicial Subcommittee mentions only about absolute liability for damage caused on the land, sea or in the air[4]. Thus the problem of liability for damge caused in outer space was bypassed. The subsequent draft convention submitted by the USA envisages absolute liability for damage caused in outer space.

In this connection the USA pointed out that this provision was incorporated by them in the draft conventions in order to create a uniform system of absolute liability for damage irrespective of whether this damage was caused on the earth, in the air or in outer space. Establishment of another kind of liability in outer space would require, in the opinion of the US representtatives, a definition about the demarcation line between the air space and outer space.

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[3] *The representative of Italy, while discussing this problem in the Judicial Subcommittee of the UN Committee on Outer Space, expressed the opinion that absolute responsibility should be imposed only for damage caused by a space object on the earth. In case of damage caused by a space object in the air space, responsibility should be determined on the basis of guilt. In this context, the Italian representative suggested to proceed from the assumption that in the event of collision between a space object and an aircraft, the former is guilty.*

[4] *See UN document A/AC.105/C.2/L.7.*

In such approach each of the parties whose space objects have collided, should bear absolute liability to the other party. This practically leads to consideration of the damage caused by the parties mutually.

The draft convention, introduced by the USA at the third session of the Judicial Subcommittee in March 1963, directly says that " if space objects collide, then responsibility for this lies neither with the registering States, nor with the international organizations involved in the launching of these objects " (clause 2 of article 111)[5].

This provision was dropped from other draft conventions, submitted by the USA to the Judicial Subcommittee[6], under the pretext that the probability of collision of objects in outer space is supposed to be highly problamatical in nature. The Mexican representative criticized the US stand on this problem at the fourth session of the Judicial Subcommittee of the UN Committee on Outer Space (September 1965). He announced that from the legal point it is absurd to proceed on the principle of absolute responsibility in the event of damage caused by one space object to the other in outer space.

The draft convention, submitted by Hungary before the Judicial Subcommittee envisages that the liability for the damage caused by one space object to the other is borne by the State which is guilty of causing damage. Article IV of this draft says:

"1. When damage is caused to a space object or persons or State on board by another space object, counter claims are not made except in the case when the claimant State presents evidence to the effect that the damage was caused due to the fault of another State or person for which the latter is held responsible.

2. If, according to clause 7, the claim is made on the part of a third State, the States answerable for the space object

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[5] *See UN document A/AC. 105/C. 2/L. 3.*

[6] *See UN document A/AC.105/C. 2L8/Rev. 1A/AC.105/C 2; L8/Rev. 2; A/AC. 105/C2L 8/Rev. 3.*

bear joint and individual responsibility"[7]. The representatives of many countries in the United Nations Organization support such an approach to this problem. The representative of Italy, for example, expressed the opinion at the third session of the Judicial Subcommittee that in the event of collision between space objects the responsibility is fixed on the assumption of common guilt, i.e., if one of the States proves the guilt of the other State for the collision of these objects, the liability for the damage rests with the guilty State.

The representative of Canada announced at the same session that in similar circumstances the responsibility should rest with the State which acted wilfully or with gross negligence. Many eminent supporters of the doctrine of space law (cooper, Jenks) also express their opinion in support of such a solution of the problem. American jurist Cooper, for example, asserts that responsibility for collision or other damage caused in outer space begins only after the guilt has been established. In this context, Cooper refers to the draft convention on collisions which was prepared by the International Technical Committee of Jurists-Experts in Air Law, in which responsibility for collision was based on the principle of guilt[8].

English jurist Jenks thinks that the question of responsibility for damage caused in outer space should be solved by means of uniform assessment of the expenditure on compensating the damage while taking into consideration any proof regarding the degree of guilt or lack of necessary precaution[9].

Thus, there are serious grounds for not extending the principle of absolute responsibility to the incident of collision between space objects. This means that liability for damage in such cases should arise only when the guilt of one of the parties launching the space objects has been established.

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7. *UN document A/AC.105/C2L.8/Rev.I.*

8. *"XIth International Congress, Stockholm, 1960. Proceedings", Vol. III, Third Colloquium on the Law of Outer Space, Stockholm, 1961, p.134.*

9. *Jenks, C.W., Le droit international des espaces celestes, "Annuaire de l'Institut de droit international", Bale, 1963 t.I, p.348.*

Collision of space objects cannot ipso facto be a ground for holding responsible one of the parties.

Before concluding an international agreement, it is also necessary to decide the question regarding circumstances under which the party will not be held responsible for causing such damage.

Flights into outer space entail all sorts of unexpectedness of primordial nature, which are difficult to be fore seen at the present stage of development of science and technology. Hardly there is any ground for fixing responsibility for the damage caused by natural calamity. Representatives of a number of countries in the Judicial Subcommittee, particularly England, Belgium and Austria, expressed the opinion that natural calamity or force majeure should not be considered as a circumstance under which responsibility can be waived. The representative of England in his speech at the fourth session of the Judicial Subcommittee expressed the opinion that the States launching space objects should be held responsible for the entire risk involved in space activities.

How far the guilt of the sufferer is to be taken into consideration while fixing compensation for damage ? This question, however, has much more importance in practice. Let us take this case as an example: crew of an aircraft flies near cosmodrome at the moment when launching of a space object was announced or when such launching is expected. As a result of this type of gross negligence the crew of the aircraft suffers damage. In such circumstances has the victim party the right to claim compensation for damage under the principle of absolute liability ?

The Hungarian as well as American draft of the international agreement considered the guilt of the victim party as a circumstance which absolves one totally or partially from absolute liability. The Hungarian draft proposes to take into consideration only the gravest forms of guilt of the victim, i. e., gross negligence and intention[10]. Thus simple (slight) negligence of the victim is not taken into consideration, he enjoys the right to compensation for damage caused.

The American draft defines in wider terms the guilt of the victim State as a circumstance under which one can be absolved from absolute liability. Commission or ommission negligently or wilfully of acts on the part of the claimant State or any natural and judicial persons whom it represents are referred to as such circumstance (clause 2 of article 22)[11].

According to the Hungarian draft of the convention, the responsibility for the consequences of illegal acts should not be subjected to some circumstances which absolve the perpetrator of the illegal acts from the responsibility. Herein, in particular, lies the difference between full responsibility for damage caused as a result of illegal act and absolute responsibility.

In the course of discussion over the draft of convention on liability for damage some delegations expressed doubt whether it would be possible to prove in similar circumstances gross negligence or the intention of the victim party. On this basis, representatives of some States (India, UAR) expressed the opinion that this convention should be based on the principle of absolute responsibility, without any exception. In the opinion of these countries, entire risk should be borne by the States launching the space objects.

In the draft of the conventions presented by Belgium all these questions are subjected to the law of the country to which the victim belongs (article 2). Such a course of solution is, however, not successful, because it proposes to solve this problem on the basis of different principles envisaged in national laws of different countries, instead of uniform principles for the determination of liability for the damage. Even in one case, where the victims are citizens of different States, the responsibility for the damage will be determined in different ways. At the same time, the task is to create a uniform system of rules with regard to activities of the States in outer space.

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[10] *The draft convention on unification of some rules concerning responsibility for damage caused by space objects, presented by Belgium in October 1964 before the Judicial Subcommittee, mentions gross carelessness on the part of a claimant State as the condition for absolving the obligation of compensation for damage. In this context, gross carelessness (Cupla lata) is understood as "commission or omision of any act, predetermined with a view to causing damage as well as irresponsible, inspite of the knowledge that it will probably cause damage" (clause "c" of article 2 of the draft convention).*

[11] *See UN document A/AC. 105/C. 2/L. 8/Rev. 3.*

Inclusion in the international convention of special provisions with regard to responsibility of the States for damage caused by objects launched into outer space will enable us to determine responsibility on a uniform basis.

The discussion in the Judicial Subcommittee over the drafts of convention on responsibility shows that the principle of absolute responsibility finds universal recognition. Opinions, expressed in the course of discussion over the drafts, concern mainly the schedule and the number of exceptions from this principle, which should be included in the international convention on responsibility.

Compensation for damage can be claimed by a State on whose territory the damage has been caused, or in respect of damage caused to its citizens or juristic persons as well as to its other organizations and institutions located on its territory or abroad. In case the victims are multiple citizens or stateless persons, the right to prefer claim in respect of damage caused to such persons should, in our opinion, rest with the State in which the abovementioned persons permanently reside.

It should, however, be kept in view that the international convention on responsibility for damage will not be applicable in all cases. In particular, it has yet to be decided whether the jurisdiction of this convention extends to the citizens of the State launching space object who reside on the territory of the foreign State as well as to the foreigners who reside on the territory of the launching State. The three abovementioned drafts of the convention resolve this problem differently. The Belgian draft proceeds on the assumption that the convention is not applicable in respect of damage caused on the territory of the State which launched the space object. Accordingly, citizens of a launching State who reside abroad can utilize the provisions of the convention, whereas foreigners who reside on the territory of the respondent State cannot do so.

According to the US draft, the respondent State is not responsible for the damage caused to its own citizen, irrespective of their location. Hence the convention is applicable in case of damage caused to foreigners on the territory of the respondent State. The Hungarian draft, presented at the third session of the Judicial Subcommittee of the UN Committee on Outer Space excluded the jurisdiction of the convention in respect of damage caused on the territory of the State responsible for damage, or in respect of damage caused to its citizens and juristic persons on its territory or abroad (clause 3 of article IX)[12].

The reviewed Hungarian draft, presented at the fourth session of the Judicial Subcommittee in September 1965, dropped this provision with a view to subjecting it to further study. In the course of discussion over this question at the fourth session of the Judicial Subcommittee the representatives of Italy, France, Belgium and Mexico expressed their opinion against the provision that the agreement could be enforced in case of damage caused to foreigners who reside on the territory of the respondent State. Thus, this problem is quite complicated and needs further study. We think that the convention should not be applicable in such cases when the damage is caused by the space object on the territory of the launching State or to its natural and juristic persons as well as to its other organizations and institutions located on the territory of a foreign State. In all the cases referred to above, in our opinion, the damage should be compensated in accordance with the laws of the State which bear the responsibility.

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[12] *United Nations Organization. General Assembly. The Committee on the Use of Outer Space for Peaceful Purposes. The Report of the Judicial Subcommittee on the work of the second part of the third session (October 5-23, 1964) submitted to the Committee on the Use of Outer Space for Peaceful Purposes, October 23, 1964 (further UN document A/AC. 105/21), Appendix 11, p. 5.*

When the damage is caused by the State on its own territory, the question may arise, first of all, about appropriate compensation to the victim citizens of this State and to foreigners who reside on its territory.

Mutual relations between the State and its citizens in a similar case should be regulated by the norms of intrastate law, and not by the norms of international law. The citizens should make their claims of compensation for damage on the basis of appropriate provisions of national legislation, and not on the basis of reference to international convention on responsibility for damage caused as a result of launching objects into outer space. Such solution of the problem would conform to the principles of international law according to which international claim cannot be preferred by the citizens against their own State.

In accordance with the national legislation of their State the victim citizens enjoy all the possibilities of realizing the claims against damage caused to them. If national legislation provides for any restriction in respect of receiving compensation, it will mean that the State demands that the citizens of the State, which launches objects into outer space, bears partial expenditure incurred in such activities. The question about the foreigners who reside on the territory of the State which caused them damage as a result of launching object into outer space should, in our opinion, be solved in a similar way.

Citizens of the State which caused damage on its own territory as well as foreigners residing on this territory enjoy equal right to file claim in the local court for suitable compensation for the damage caused to them. In this respect, the State should extend to the foreigners such rights as it extends to its own citizens. One or the other category of victims should not be placed in a more favorable condition. In the event of open discrimination in respect of foreigners, the State, whose citizens they are, may seek just solution of this problem from the State of their residence.

However, we feel that there is no serious reason for extending the jurisdiction of the international convention to· cases of damage caused to foreigners on the territory of the launching State. This would place them in a privileged position in comparison with the citizens of the respondent State.

Similar exclusion of foreigners from the jurisdiction of the State on the territory of which they reside will have no serious basis. As the only argument in support of such resolution it was mentioned that in accordance with the submitted drafts of the conventions it was not obligatory on the part of foreign citizens to try all possibilities available in the launching State for compensating the damage before their State will prefer a claim against the former State. Such exclusion of foreigner from the jurisdiction of the respondent State may only extremely complicate the case, and this would hardly serve the interest of the foreign victim. Besides, one should keep in view those foreign citizens or foreign enterprises which take part in the launching of the objects into outer space and to whom, in our opinion, the international convention on responsibility should not be extended.

While discussing in the Judicial Subcommittee the US draft, such a question was raised: If an object, launched into outer space by State "A", will fall on the territory of State "B" and cause damage to the citizens of

1) State "A"
2) State "B"
3) State "C",

then which State will be entitled to prefer claim ?

The report of the Judicial Subcommittee on the work of the 2nd part of the 111 session, submitted before the UN Committee on Outer Space, contains following answers to this question:

a) So far as the citizen of State "A" is concerned, no claim can be made in accordance with the convention. He will have the opportunities of satisfying himself in accordance with the laws of State "A".

b) So far as the citizen of State "B" is concerned, in accordance with the convention the government of the State "B" will be entitled to prefer a claim against the State "A".

c) So far as the citizen of State "C" is concerned, in accordance with the convention the latter should be entitled to prefer claim against the State "A".

The same can be done by State "B", if the interested party is the permanent resident of this State. No double claim can, however, be made by both the States "B" and "C"[13].

Thus, if space object will fall on the territory of a foreign State, the latter will be entitled to prefer a claim only in respect of damage caused to its citizens.

If damage is caused to a foreigner, usually the claim should be made by the State whose citizen he is. In some cases the claim can be made in the interest of foreign victims, subject to the condition that they are permanent residents of the country and are not citizens of the State which is responsible for the damage caused to them.

If a foreign victim is citizen of the respondent State, he has all the opportunities of receiving compensation for the damage on the basis of internal legislation of this State. Thus, there will be no necessity of protecting the interest of the victim on the part of the authorities of the country of his residence.

Consequently, if space object will fall on the territory of a foreign State, the latter will not be entitled to prefer claim for damage caused to citizens of the State announcing the launching of this object, who reside on the territory of such State.

While formulating the convention on responsibility for damage caused by space objects, it is of great importance to define what is meant by such objects.

The Hungarian draft considers space object as: spaceship, orbital laboratory, container and any other device assigned for movement in outer space and maintained there by any method other than air effect, as well as means of delivery of such objects or any of their parts (clause 3 of article I of the draft)[14].

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13. UN document A/AC.105/21, p.32.

14. See UN document A/AC.105/29, Appendix 11, p.3.

The Belgian proposal contains similar definition. The draft, proposed by the USA, does not give definition of space objects. At the same time the necessity of such definition is dictated by the fact that it gives an opportunity to differentiate the responsibility for damage caused by space object from the responsibility for analogous damage caused by aircraft.

The international agreement on the responsibility for damage caused by objects launched into outer space should also define the concept of damage in the wider sense of the term. Nowadays it is universally accepted that death, physical injury, destruction of property or harm to the latter should be considered as such damage.

The Hungarian draft of the agreement considers death, physical injury or deterioration of health and loss to property as damage (clause 1 of article 1)[15]. This draft takes into consideration the proposal made by Italy at the foregoing session of the Judicial Subcommittee for supplimenting the schedule of various kinds of damage with the words " any injury to health" as there can be internal inuries without showing any external symptom[16]. The concept of damage is defined in the same line in the US draft of the agreement (clause 'a' of article 1). According to this draft, damage means loss of life or physical injury, destruction or loss of property, or damage to the latter[17].

In 1964, India proposed a comprehensive definition of the concept of damage. According to this definition, damage means loss of life or physical injury, destruction or loss of property belonging to natural or juristic persons, or damage to such property which is caused on the earth, in the air or in outer space as a result of launching space objects or in course of its movement. It also includes damage caused by the articles placed on the space object. The Indian proposal mentioned about the damage as sudden or of slow action, direct or indirect[18].

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[15] *See UN document A/AC.105/29, Appendix 11, p.31.*

[16] *UN document A/AC.105/21, Appendix 11, p.36.*

[17] *See UN document A/AC.105/29, Appendix 11, pp.9-10.*

[18] *See UN document A/AC.105/21, Appendix 11, p.36.*

At the third session of the Judicial Subcommittee the Belgian representative expressed the apprehension that enumeration of various kinds of damage subject to compensation may prove to be nonexhaustive in a new sphere of human activities such as outer space. Belgium expressed the opinion that all kinds of damage subject to compensation should be defined by the national legislation of the victim party. Accordingly, the concept of damage is defined in the Belgian draft of the convention as "any loss that may entitle the victim to compensations according to the law of his country"[19] (article 2).

The solution of the problem of compensation for loss of benefit and moral damage is much more complicated.

The Hungarian draft stipulated the necessity of compensation for loss of benefit, and moral damage each time when the law of the State responsible for the damage in general envisages compensation for such damage (clause 2 of article 11)[20].

It should be kept in view that the Soviet law envisages compensation for income which has not been received. It, however, does not mention moral damage. Law in other countries recognizes the right to compensation not only for losses in property, but also for loss of benefit(French Civil Code, article 1149 German Civil Code 252, Anglo-American practice). So far as compensations for moral damage is concerned, the legal systems of different countries solve this problem differently. Thus, German Civil Code does not recognize the general principle of material compensation for nonmaterial damage, if law does not directly stipulate so. English law in some cases allows monetary compensation for nonmaterial damage. In the USA the courts most frequently award compensation for moral damage. Compensation for moral damage has become widely prevalent in France. Thus, there is no uniformity in solving this problem, and it requires further study.

The question may arise in near future about the use of nuclear installations like rocket engines as well as power sources on the space objects.

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19. See UN document A/AC.105/21, Appendix 11, p.30.

20. See UN document A/AC.105/29, Appendix 11, p.3.

Hence, quite natural is the question whether the concept of damage caused by space object covers also the cases of probable damage resulting from nuclear installations on the spaceships. In case of an affirmative answer to this question, the future international convention should take into consideration the peculiarities of damage caused by nuclear energy (duration of radiation effect, nature of damage). We, however, feel that this question, because of its specific nature, requires special study and appropriate legal regulation.

While discussing this question at the third session of the Judicial Subcommittee of the UN Committee on Outer Space in 1964, the opinion was expressed that "the question of responsibility for causing nuclear damage, though important, is a comlicated one and should not be broached in the convention on responsibility for nonnuclear damage"[21]. This, of course, does not relieve the States of the obligation to adopt all possible precautionary measures for avoiding such damage. The reviewed Hungarian draft, introduced in the fourth session of the Judicial Subcommittee in September 1965, incorporated the provision that the convention under formulation should not be applicable in respect of nuclear damage, which may be caused by space object containing nuclear reactor (clause I, sub clause 'c' of article I)[22].

While justifying this new provision, the representative of Hungary emphasized that the exclusion of nuclear damage from the jurisdiction of this convention would facilitate the solution of several complicated problems on which the opinions of the members of the Judicial Subcommittee substantially differ. The problem to limit the responsibility for damage is one of them.

At the fourth session of the Judicial Subcommittee several delegations supported the Hungarian proposal. Besides the socialist countries, this proposal was also supported by the representatives of Mexico, Austria and Belgium. The Mexican representative said that with a view to simplifying the task of formulating the convention on the responsibility for damage the question of nuclear damage could be excluded. The representatives of Austria and Belgium declared that they would not object to the provision that the convention was not applicable to cases of nuclear damage, if majority of the members of the Subcommittee had agreed not to include in the draft of the convention the provision for fixing some definite limit of the responsibility for damage. The Italian representative also spoke on this problem and announced that he would be ready not to oppose the Hungarian proposal, if the Subcommittee had at its disposal necessary technical data. The representatives of Austria and the USA supported the idea that the problem of the possibility of causing nuclear damage by objects launched into outer space should be studied from the technical angle. The Austrian representative even proposed to pass over this problem for review to the Scientific and Technical Subcommittee of the UN Committee on Outer Space. This proposal, however, could not get support, and the problem remained unsolved.

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[21] *See UN document A/AC.105/21, Appendix IV, p.10.*

[22] *See UN document A/AC.105/29, Appendix 11, p.3.*

Corpus delicti of damage does not automatically involve the obligation of compensation. For this purpose, it is necessary to establish causal relation between the damage on the one hand and launching, movement or fall of the entire or part of the object on the other. This is self-evident, because if damage has been caused due to some other reason which has no connection with launching of an object into outer space, then the corresponding obligation to compensate this damage does not devolve on the State conducting space activities. Nevertheless the draft of the convention, proposed by Belgium, contains an article, according to which, " the incident which is the cause of damage involves the obligation to compensate as soon as the relationship between the damage on the one hand, and launching, orbitting or falling of the entire space object or its part on the other, has been established "(clause "c" of article I)[23]. In this context, Belgium proposes to define the concept of causal relation in accordance with national laws of the victim party (article 2)[24].

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[23] *See UN document A/AC.105/21, Appendix 11, p. 29.*

[24] *ibid., p.30.*

While discussing in the Judicial Subcommittee the question of jurisdiction of the international agreement on responsibility, the representatives of many countries expressed the opinion that this jurisdiction should extend to damage caused by launching, including attempt of launching of object into outer space; any apparatus or installation used for such launching and any object lauched into outer space, including objects launched into outer space prior to this agreement coming into effect[25].

The question of responsibility of a State for damage caused as a result of conducting illegal activities in outer space deserves special attention. In this context, activities which are incompatible with existing norms of space law as well as with principles of international law should be considered as illegal activities. Such activities of a State, for example, as nuclear explosions in outer space, installing nuclear weapons in outer space, inimical propaganda from outer space, disrupting the equipment on board a foreign space object or its destruction, present great danger and hence special judicial power is required. The provisions of the US draft of the convention are silent about the question of responsibility of a State for damage caused by such illegal activities in outer space. Such an answer can, however, be found in the Hungarian draft of the convention. According to this draft, a State should bear full responsibility for damage caused on the earth, in the atmosphere or in outer space, if damage was caused while conducting illegal activities in outer space, or if a spaceship or object has been launched for illegal purposes, or if damage was caused by other means as the result of illegal activities. In such cases a State responsible for damage forfeits the opportunity for justification (articleV)[26].

It is quite reasonable that the Hungarian draft of the agreement upholds the idea of enhanced responsibility of a State for damage caused as a result of illegal activities in outer space. It is our opinion that in case of responsibility for such activities the restrictions on absolute responsibility should not be imposed. It means that, firstly, in case of collision between space objects the responsibility should always rest with the State which carries out illegal activities; secondly, such State should not be absolved from the responsibility even if it will furnish evidence to the effect that the damage was the result of natural calamity or deliberate action (gross negligence) on the part of the victim party.

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[25] *See UN document A/AC.105/21, Appendix IV, p.9.*

[26] *See UN document A/AC.105/29, Appendix 11, p.4.*

Usually States carry out launching of space objects from their territories or from their installations, and as a rule, are proprietors and possessors of objects launched by them into outer space.

In similar cases the question as to who should bear responsibility for damage is very simple and creates no doubt at all. The responsibility for damage should be imposed on the State which launched or made the attempt to launch a space object. This responsibility can be established on the basis of information contained in the announcement about the launching of a space object: identification data, which can be found on the space object or on its components; evidence by the crew members of the spaceship; any other convincing proofs.

It is quite probable that damage may be caused by a space object belonging to a private company. For example, according to the 1962 act in the USA, control of world communication through satellites has been transferred to the private company named "COMSAT" ("Communication Satellite Corporation"). Air law and maritime law in such cases establish the responsibility of the operators. In space law operates the principle of international responsibility of a State for national activities in outer space.

In accordance with the Declaration of Legal Principles the international responsibility for all kinds of national activities in outer space should be borne by the States regardless of whether such activities are conducted by government agencies or other nongovernment organizations. According to the Declaration, activities of the latter should be conducted with the permission and under the constant surveillance of the respective State.

It is, however, probably that an object can be launched into outer space as a result of joint activities of a number of States and international organizations. For example, the Western European Organization for making and launching the space rockets "ELDO" plans to launch satellites into orbit with the help of rockets, of which the first phase will be English, second phase French and the third phase West German, from the Australian launching pad in Woomera. Thus, we have a case of joint activities of four States (England, France, Federal Republic of Germany and Australia) and international organizations. Other forms of joint activities of States for launching objects into outer space are also possible[27]. Hence life itself has raised the question of responsibility for damage which may be caused by an object launched as a result of joint activities of the States. In case several States are involved, the responsibility for damage can be joint or partial. It is our opinion that if the damage has been caused to a State as a result of joint space activities of two or more States, the latter should bear the joint responsibility with a right to recover the due from the co-respondent. Distribution of the amount of compensation to be paid for damage among the parties on the basis of partial responsibility commensurate with the guilt of each party is more complicated and consequently a less desirable way of solving the problem.

In case of partial responsibility it is extremely difficult to determine which part of the damage should be compensated by each of the States. The Government of Austria quite rightly drew attention to this aspect while discussing the problem of nuclear damage within the framework of International Atomic Energy Agency. The Memorandum, presented by the Austrian Government, noted that the victim party is not in a position to have a priori knowledge as to which part of the responsibility lies with any participant of joint activities. Sometimes such part of the responsibility may be clarified only at the time of court proceedings. The victim party will, however, present its claim before the classification and cannot change it. Thus, consequences of similar condition rest with the victim party[28]. That is why the draft of the agreement, presented by Hungary, proposed to establish in similar cases the principle of joint responsibility of States which are party to launching of spaceship or other object. In this case, the victim party can claim compensation for damage from any of the parties to joint launching. Polish jurist E. Osetskii considers that in case of joint responsibility the victim party will usually present a claim either to the State which is strongest in financial respect or to the State which can quickly compensate for the damage[29]. In this case the claimant will be saved from the botheration of entering into the details of the joint venture of other States for launching space object in order to determine the degree of guilt of each party.

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[27] *The USA carried out launching of English, Canadian and Australian satellites with her rockets. Under the aegis of the UNO an international rocket launching station has been constructed at Thumba, India, which will be used by other States also.*

The principle of joint responsibility has found wide approval in international law. The Brussels Convention of 1910 on unifying certain rules concerning collision of vessels establishes joint responsibility when several vessels are found guilty for damage resulting in death or physical injury (article 4)[30].

The Warsaw Convention of 1929 on rules concerning air transportation establishes joint responsibility of the transporters for destruction, loss, damage or detention of luggages and commodities (article 30)[31].

In accordance with Brussels Convention of 1961 on responsibility of operators of nuclear vessels, the joint responsibility is fixed for such cases when damage has been caused by several operators. In course of discussion over the draft of this convention the French Government drew attention to the fact that joint responsibility was preferable to partial responsibility. The French Government then emphasized that it was more profitable for the victims, if joint responsibility was applicable in all cases, irrespective of the more or less possibility of establishing the share of the responsibility of each operator[32].

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[28] *"Project de convention sur 'establissement de normes internationalles minima concernantes la responsabilite' civile en matiera de dommages nucleaires. Observations Presentees par les gouvernements", Agence internationale de l'energie atomique, Vienne, 1962, p. 27.*

[29] *Osiecki, J., Odpowiedzialnosc za Szkody wyrazadzone w kosmosie, "Sprawy Miedzynarodowe", 1964, No. 10, str. 106.*

[30] *By a decree of the Council of Peoples' Commissars of the USSR of February 2, 1926 the Soviet Union recognized the convention as valid. See "SZ SSSR", otd. 11, 1931, No. 20, st. 270.*

[31] *See Showcross, H.N., and K.M. Beaumont, Vozdushnoe Pravo [Air Law], p. 239.*

The delegates of many countries in the United Nations Organization and also the spokesmen of the doctrine of space law express their opinion in favor of the principle of joint responsibility for damage which may be caused by a space object launched as a result of joint activities of States.

Various aspects of the principle of joint responsibility were discussed in the Judicial Subcommittee of the UN Committee on Outer Space and particularly at the fourth session of the Subcommittee held in September 1965[33]. While speaking on this problem, the Austrian representative noted that so far it was difficult to say which approach was most practical; however, in the case when one of the States taking part in the space activities is most solvent, and the other States are considerably poorer, it is more convenient to the claimant State, if it could present its claim to the most solvent State, i.e., select the respondent State at its own discretion. Majority of the speakers were inclined to a stand according to which certain criteria should be fixed for making some or other States participating in launching of a space object answerable for damage caused by this object. In this context the following criteria were mentioned: making the territory available for launching of space object, making the installations available for launching of space object, exercising control over orbit and trajectory of space object, ownership of space object, assistance in launching space object, participation in launching space object, registration (national or international) of space object[34].

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[32] *Project de convention sur establissement de normes internationalles minima concernantes la responsabilite' civile en matiere de dommages nucleaires. Observations Presentees' par les gouvernements", 1962, p. 25.*

[33] *See UN document A/AC.105/29, p. 5.*

While discussing these criteria in the Judicial Subcommittee, the Italian representative opposed the criterion according to which the act of making the territory of one State available to another State for launching space object is considered as the ground for making the former State responsible for damage. In this connection he referred to the launching of the Italian space object "San-Marco", which was carried out from the US territory by an American rocket carrier and registered in the UN Secretariat as an Italian satellite. The French representative also spoke on the same line. He even announced that it would be inexpedient to hold a State jointly responsible for making its territory available for launching of space object inasmuch as the States would be unwilling to give their territory to international organizations in such cases. In this context the French representative expressed his opinion in favor of holding one State as respondent. The Rumanian representative entered into polemics with the Italian representative and in the course of discussion expressed the opinion that use of the territory of some State for launching a space object which caused damage should be a principal criterion for determining the State which is responsible for the damage. In the opinion of Rumanian representative, such a State should bear primary responsibility. Other States, which participated in a joint space activity, should bear responsibility for damage together with this State according to the principle of joint responsibility.

The US representative in the Judicial Subcommittee said that the American side needs clarification on following two circumstances: What should be the degree of participation of a State in joint space activities so that it could be held responsible for damage, and also whether a State which has sold a space object to some other State should be held responsible for the damage.

The representatives of Italy and Japan expressed their opinion in favor of the system of international registration

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34, ibid., p.5.

of space objects as the criterion for fixing responsibility of a State for damage in case of joint launchings. The representatives of France, Belgium, Mexico and some other States expressed doubt about the advisability of examining the problem of registration of space objects in the agreement under preparation. Referring to the fact that international air law has no provision for international registration of aircraft, the Mexican representative said that in his opinion there was no necessity of international registration of spaceships. He suggested to restrict the effort to establishment of national identification mark.

Considering that the concept of joint responsibility is interpreted in different systems of law not in the identical way, the majority of the members of the Judicial Subcommittee of the UN Committee on Outer Space arrived at the conclusion that the meaning of this concept should be elucidated in the convention. The representatives of the USA and Australia declared that the participants in joint space activities should decide among themselves about the share of responsibility of each of the respondent States. The US representative said that the convention should envisage that it does not affect other international agreements among the interested States. In this connection arises the question: What is to be done in the case when a space object, launched as a result of joint activities of the States, causes damage to one of them? In this case, does the victim party become entitled to demand compensation from the other participants in the joint experiment or one should proceed from the assumption that the State is a victim and a respondent at the same time.

We think that the general agreement on responsibility for damage should not touch this problem. The parties to joint activities should decide among themselves the procedure for compensation in the form of recovery claim in respect of each other in case of joint responsibility as well as in the form of compensation for damage caused to each other in the course of or as a result of joint activities.

It is quite probable in near future that the damage may be caused by an object which was launched by an international organization. A general agreement on the responsibility of international organizations, engaged in activities in outer space, in accordance with the convention on damage has been achieved at the fourth session of the Judicial Subcommittee of the UN Committee on Outer Space[35]. Different viewpoints were expressed in the Judicial Subcommittee in the course of discussion over the problem of share of responsibility between the international organization and its member States.

The Hungarian draft of the convention proposed to establish joint responsibility of the international organizations and its member States for damage caused by an object which belongs to or was launched by this international organization (article VII)[36]. The US draft fixed the responsibility primarily on the international organization. So far as the member States of the organization are concerned, their responsibility would arise, according to the principle of joint responsibility, only in the case if the international organization fails to compensate the damage caused by it within a period of one year from the day of arriving at an understanding about the amount of compensation to be paid (clause 4 of article 17)[37]. The representatives of the Western countries spoke in the Judicial Subcommittee in support of the American formulation, considering that the international organization should not bear the main responsibility for activities in outer space and for damage caused as a result of such activities.

The delegations of the USSR and other socialist countries in the Judicial Subcommittee defended the necessity of incorporating in the convention the provisions to the effect that the responsibility for damage caused by a space object, which was launched by an international organization, must lie simultaneously with the international organization and with its member States according to the principle of joint responsibility. A formulation of the draft convention on responsibility for damage, acceptable to all the countries, has to be worked out through further exchange of opinion on this problem. We think that it is possible to consider the activities of an international organization as a different form of joint activities of States and to settle the problem in accordance with the principle of joint responsibility for damage. This means that victim party can claim compensation for damage simultaneously from the international organization as well as from any member State of this organization. Such resolution would be in conformity with the Declaration of Legal Principles, according to which the responsibility for implementing the principles enumerated in this Declaration is borne by the international organization as well as the member-States.

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[35] *See UN document A/AC.105/29, Appendix 11, p.5.*

[36] *See UN document A/AC.105/29, Appendix 11, p.5.*

[37] *ibid., p.12.*

In the course of discussion over the problem of responsibility of international organizations the representatives of England, Australia, Italy, Canada and Sweden expressed the opinion for participation of the international organizations in the convention on damage. They fortified their position with the argument that the international organizations were to play a great role in the exploration and uses of outer space and that they can be parties in international agreements. The representative of Argentina said that it was necessary to define international organizations which could be parties to the convention on responsibility for damage. The UN and its specialized institutions could be such organizations. The majority of delegates in the Judicial Subcommittee thought that the convention on responsibility for damage should extend to international intergovernmental organizations. The representative of the USA adhered to another viewpoint. He spoke in favor of extending the jurisdiction of the convention not only to such international organizations but also to any other organization which would like to take upon itself the obligation of observing the provisions of the convention on responsibility for damage. In cases like this, according to the US draft, such organizations have to adopt a special declaration. The US representative wanted that all the international organizations, which conduct activities in outer space, should announce that they were joining the convention (clause 3 of article III)[38].

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[38] *ibid., p.12.*

The representatives of the USSR and other socialist countries defended the stand according to which the convention should have provision for the responsibility of international organizations. In this context, they opposed the joining of international organizations in the convention by signing it or by adopting a declaration to the effect that these organizations take upon themselves the obligations of the convention.

From the viewpoint of international law, international organizations cannot be placed on par with States. It follows from the international practice that international organizations do not participate in the general multilateral treaties of universal type as parties. There are instances when an international organization takes upon itself the obligation and bears the responsibility for its fulfilment, including the material responsibility, on the basis of bilateral treaties between the States.

Such an obligation, for example, is the agreement about the location of the Central Institutions of the United Nations Organization which was concluded between the UNO and the USA (article 2, section III; article 3, section IX). According to the agreement on supply between Congo and the International Atomic Energy Agency (IAEA) of June 27, 1962, the latter bears the responsibility for the fuel material from the moment of its delivery to the Agency (article 3, section VII). In general treaties of universal type the international organization comes under the obligation without formally participating in such a treaty. Thus, according to a number of agreements, the obligations of a depositary are imposed on international organizations. The Hague Convention of 1954 imposed the obligation of a depositary on the UNESCO; the International Convention of 1960 on Protection of Human Life on the Sea imposes the obligation on Intergovernmental Maritime Consultative Organization (IMCO).

The draft agreement on emergency first aid in the event of accidents involving radiation, prepared by the Secretariat of the International Atomic Energy Agency in March 1965, envisaged that this agreement would remain open for signature of the Agency and member-States[39]. The attempt to create a precedent in this respect evoked protest from the USSR and some other States.

While commenting on this draft agreement the Soviet Union expressed her disapproval of the fact that the IAEA was "along with the member-States a party to the agreement because international organization cannot be a subject of international law in the same way as a State"[40]. Thus, in accordance with the established practice of concluding international treaties of universal type, it is possible to speak about the responsibility of an international organization for damage caused by a space object without formal participation of the international organization in the convention which establishes such responsibility.

At the same time, there is no ground for authorizing an international organization for claiming compensation for damage. An international organization has neither any territory of its own, nor citizen. That is why serious protests are being evoked by the US draft according to which an international organization jointly with States can make claim against a respondent State in respect of compensation for damage (clause "d" of article I)[41].

While defining international organizations on which the convention imposes the responsibility for damage, it is desirable to confine only to interstate organizations.

For the activities of nongovernmental international organizations (for example, "Eurospace") the responsibility should be borne in our opinion, only by the States, representatives or citizens of which participate in such organizations. If a State, according to the Declaration of Legal Principles, bears responsibility for space activities of nongovernment national organization under its control, then similarly, a State should bear joint responsibility for space activities of several nongovernmental national organizations which are united in one nongovernmental international organization.

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[39] *See International Atomic Energy Agency. Governing Body, document Gov./INF/140, 28 May 1965, p.21.*

[40] *ibid., p.22.*

[41] *See UN document A/AC.105/29, Appendix 11, p.10.*

While drafting the convention on liability for damage, it is desirable to fix a maximum limit for compensation. It would firstly, create a definite guarantee to a victim and secondly, protect a State conducting the launching against excessive claims of a victim.

The widely prevalent practice of fixing a limit for liability speaks in favor of such a solution of the problem. The international agreements on establishment of responsibility in the domain of air law (particularly, Warsaw Convention of 1929) are based on this principle. Fixation of a limit for responsibility is envisaged also in conventions which define responsibility of a transporter in maritime law. In the same line the European States have prepared the draft convention which is to supplement the international agreement of 1961 on transportation of passengers and luggage by railways. Fixation of a limit for liability is also envisaged in the new field of human activity like the use of nuclear energy. In particular, the Vienna Convention of 1963 on civil liability for nuclear damage envisages fixation of a limit for liability. The participants in the conference which worked out this convention fully subscribe to this principle. The convention of 1961 on the liability of operators of nuclear-powered ships is also based on this principle.

The limit of liability for damage can be fixed by various methods. The weight of the object causing damage, for example, can be taken as a criterion. The Rome Convention of 1952 on compensating the damage caused by foreign aircraft to a third party on the land takes the same path[42]. In accordance with article 11 of this Convention, the liability for damage must not exceed:

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[42] *See Showcross, H.N., and K.M. Beaumont, Vozdushnoe pravo, p.317-318.*

a) 500,000 francs for an aircraft weighing 1,000 kilograms or less;

b) 500,000 francs plus 400 francs for each kilogram above 1,000 kilograms for aircraft weighing more than 1,000 kilograms, but not exceeding 5,000 kilograms;

c) 2,500,000 francs plus 250 francs for each kilogram above 6,000* kilograms for aircraft weighing more than 6,000* kilograms, but not exceeding 20,000 kilograms;

d) 6 million francs plus 150 francs for each kilogram above 20,000 kilograms for aircraft weighing more than 20,000 kilograms, but not exceeding 50,000 kilograms;

e) 10,500 million francs plus 100 francs for each kilogram above 50,000 kilograms for aircraft weighing more than 50,000 kilograms.

Liability for death or injury, according to the Convention, should not exceed 500,000 francs for each dead or injured person[43].

Limit of liability can also be fixed according the nature of damage. The Warsaw Convention of 1929 on rules concerning international air transportation is an example of such method of fixing the maximum limit of liability for damage[44]. This Convention speaks about the liability of a transporter for damage caused in the event of death, injury or any kind of physical damage to a passenger of an aircraft and also for damage caused in the event of destruction, loss or damage to luggage or article during air transportation. The limit of liability is fixed depending on the nature of damage. While transporting passengers the liability of a transporter in respect of each passenger was limited to the sum of 125,000 francs.

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* *Translator's Note - This is a literal translation of the Russian text. Apparently, it is a printing mistake, and should be 5000 kilograms.*

[43] *The amounts of money in France mentioned in this convention refer to unit of value containing 65.6 mg of 225 carat gold.*

[44] *Showcross, H.N., and K.M. Beaumont, Vozdushnoe pravo, pp. 236-237.*

While transporting registered luggage and article, the liability of a transporter was limited to the sum of 250 francs per kilogram, and in respect of articles carried by a passenger - 5000 francs per passenger.

The limits of liability fixed by the Warsaw Convention of 1929 were enhanced by the Hague protocol of 1959. Though there was a slight increase in the amount of maximum sum of compensation for the damage, the very idea of fixing a limit for liability was again confirmed. And this is the decisive condition for reference to Warsaw Convention of 1929 as a precedent of legal regulation of the problems of liability for damage in the international air law.

The liability for damage can also be limited by fixing the maximum amount of the sum within which the damage can be compensated. The Brussels Convention of 1961 on the liability of operators of nuclear- powered vessels limits the liability of operators to a sum of 100 million dollars, but the Vienna Convention of 1963 on civil liability for nuclear damage limits to a sum of 5 million dollars.

The American jurists Cooper and Beresford as well as the Dutch jurist Rhode-Fershoor consider the sum fixed by the Vienna Convention of 1963 on civil liability for nuclear damage as most appropriate. This Convention fixes the sum of 5 million dollars as the limit of compensation for damage. This sum appears to us to be considerably high, because the greatest damage caused by a space object would be approximately the same as any great aviation catastrophe.

The drafts of the agreement, presented by Hungary and the USA, say that the liability of a State should not exceed the maximum limit which is yet to be fixed. Various sums, 100 million, 50 million, 25 million and 5 million dollars, were mentioned in the course of discussion over this problem in the Judicial Subcommittee and in its Working Group. The USA, England, Canada, Italy and several other States supported the provision for fixing the maximum limit of liability in the form of an ascertained sum. The representatives of Austria, Belgium, Brazil and a number of other countries opposed the provision for fixing any limit for liability. At the sametime, representatives of a number of countries proposed to limit the amount of compensation only in the event of death or physical injury caused to a single person. So far as the loss or damage of property is concerned, it proposed to calculate the amount of compensation on the basis of actual damage[45]. Such differentiation in the limit of liability depending on the nature of damage hardly has any serious ground. Such an approach practically nullifies the very idea of limiting the amount of liability. The Belgium draft of the convention did not provide for the limit of the amount of compensation for damage at all.

The representatives of the USSR and other socialist countries in the Judicial Subcommittee pointed out the desirability of fixing in the convention on damage a maximum limit of liability in the form of an ascertained sum. It should, however, be kept in view that this problem should not be a stumbling block on the way of preparing the text of the draft convention on liability for damage.

This is specially evident in the case of inclusion in the draft convention of a provision to the effect that it will not be applicable in respect of damage caused by space objects carrying nuclear reactor.

The compensation, within the limits of the sum fixed by the convention, should, as far as possible, compensate the damage.

The US draft convention mentions that the "compensation to be paid by a State for the damage according to the terms of the present convention is determined in accordance with the applicable principles of international law, justice and impartiality" (clause 4 of article II)[46].

The Hungarian draft as an exception allows reference to the laws of the State which is responsible for the damage in such cases when the problem involves compensation for the lost profit and for moral damage (clause 2 of article 11)[47]. While commenting on this provision, the Hungarian representative in Judicial Subcommittee supported the application of international law to other cases.

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[45] *See UN document A/AC.105/21, Appendix IV, p.17.*

[46] *See UN document A/AC.105/29, Appendix 11, p.11.*

In the course of discussion over this problem at the fourth session of the Judicial Subcommittee in September 1965, the representatives of Austria, England, Belgium, France and Sweden expressed the opinion that the law of the claimant State should be consulted for determining the quantum of compensation for the damage. The Austrian representative insisted also on the compensation for the so-called moral damage.

The representatives of Australia and Canada supported the formulation of the US draft and emphasized that they could not accept any national law as the basis.

Thus, in view of the discussion in the Judicial Subcommittee, the question: Which law should be applicable for determining the quantum of compensation for damage, requires further study. The fact that the practice of international relations has not evolved so far any uniformity on this problem should be taken into consideration. Hence, special provisions for the determination of liability on an uniform basis should be incorporated in the convention on responsibility. Reference to national laws of victim States as well as of the State which launched the space object will not ensure uniformity in determining the volume of liability.

Reference to national laws of a victim party would practically mean that in the event of one incident causing damage to more than one State there would be divergence in the amounts awarded as compensation[48]. This aspect was taken into consideration while discussing the problem of responsibility for damage in the Judicial Subcommittee of the UN Committee on Outer Space. In case the reference is made to national laws of the State which launched the space object, the amounts of compensation for one and the same damage would vary if a number of States jointly launch the object into outer space.

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[47] *ibid., p.3.*

[48] *See UN document A/AC.105/21, Appendix IV, p.25.*

In connection with the problem of responsibility for damage arise the questions regarding the procedure for presenting claims and appropriate procedure for satisfying these claims. All the three drafts of the convention provided for the presentation of claims for compensation against damage through the diplomatic channel within a period of one year from the day of the damage. A State which has suffered the damage may ask a third State to represent its interest, if it has no diplomatic relations with the State which is responsible for damage.

The Hungarian draft suggested the procedure of settling the disputes through an arbitration board to be set up by States on a parity basis. If this board fails to arrive at a decision, it had in view the possibility of referring to the international arbitration or to any other means of settling the disputes which is acceptable to both the States (article XII).

The US draft envisaged the inclusion of an article on compulsory jurisdiction of the International Court in the convention on responsibility for damage. It should, however, be kept in view that the so-called facultative protocols are usually prepared and these can be signed by those States which desire to recognize compulsory jurisdiction of the International Court[49].

In connection with the preparation of the draft convention on responsibility for damage it is quite natural that the question arises about the parties to this agreement. There are two approaches to this problem.

Hungary suggested in her draft that the convention should remain open for signature and joining to all States. The USA wanted to restrict the circle of participants to the convention within member States of the UNO. Such an approach is contradictory to the idea of universality which should be the basis of the convention on responsibility for damage.

The practice of recent years shows that efforts to restrict the circle of participants in any agreement, which is universal in nature, are artificial and they are rejected by realities. It is sufficient to refer to the Treaty on Banning the Tests of Nuclear Weapons in the Atmosphere, in Outer Space and under Water, which was open for signature and joining to all States without any restriction whatsoever. There is no reason for creating artificial obstacles in the way of participation of all States in the convention which is to ensure appropriate financial protection in the event of damage caused by the objects launched into outer space.

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[49] *Such facultative protocols were prepared at the UN Conference on Maritime Law of 1958, Vienna Conference on Diplomatic Relations of 1963. The number of States which signed these protocols is insignificant.*

CHAPTER VI

AVERTING POTENTIALLY HARMFUL CONSEQUENCES OF EXPERIMENTS IN OUTER SPACE

The progressive public opinion on our planet demands the adoption of measures for averting potentially harmful consequences of experiments in outer space. The question is about such activities in outer space which may inflict damage to the cause of exploration and uses of outer space for peaceful purposes or affect the interests of the entire mankind. The space law should contain rules which ban or restrict conductance of potentially harmful scientific and technical experiments in outer space which may cause changes in the natural surroundings of the earth celestial bodies and outer space. These experiments may also harm future scientific investigations and experiments as well as interests of other States and conditions of human life.

The idea of conclusion of an international agreement with a view to banning or restricting certain kinds of space activities was repeatedly expressed by the Soviet jurists of international law. In 1963 I.I. Cheprov wrote the following in this respect: ''Adoption of appropriate rules by the States would be a great contribution to the cause of subordinating the exploration of outer space to the interests of all nations. An agreement to this effect would play the role of a restraining factor in respect of attempts of arbitrary bossing in outer space. This agreement could envisage measures for calling those States to order which thought of exploiting the inaccessibility of space apparatus and create arbitrariness in outer space''[1].

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1. Cheprov, I.I., Pravovoe regulirovanie deyatel'nosti v kosmicheskom prostranstve (Legal Regulation of the Activities in Outer Space), p.63; Zhukov, G.P., Za chistotu kosmosa (O predotvrashchenii potentsial'no vrednykh eksperimentov v kosmose) [For Cleanliness of Outer Space (On Averting Potentially Harmful Experiments in Outer Space)], ''Aviatsiya i kosmonavtika'', 1965, No.11, pp.39-42.

The Institute of International Law also drew attention to the necessity of concluding an international agreement with a view to averting potentially harmful consequences of the experiments in outer space. The resolution of this Institute, adopted on September 11, 1963, states: ''Scientific or technical experiments in outer space, fraught with the danger of such changes in the natural surroundings of the earth, celestial bodies and outer space, which may cause damage to future scientific explorations and experiments, to conditions of human life or to the interests of another State, unavoidably and directly affect the interests of the entire international community. With a view to averting such danger the provisions of this resolution should be supplimented with appropriate international agreements''[2].

First of all, we have in view prevention of obstruction and contamination of celestial bodies and outer space as well as prevention of contamination of earth's atmosphere therefrom.

The legal aspect of different types of activities of States which may lead to obstruction or contamination of outer space, requires thorough examination. Anyhow, this is a problem which in future may become the object of special international legal regulation.

Constantly and rapidly increasing number of objects which are being launched into outer space is unavoidably leading to its obstruction. As a comparison it may be mentioned that the first steam engine appeared in the year 1804, and after nine years there were only 2 steam engines in the whole world. On the other hand, after launching of the first satellite on October 4, 1957 from the territory of the Soviet Union, towards the beginning of 1966 more than six hundred space objects : satellites, the last stages of carrier rockets etc., were moving along the orbit around the earth, not to mention the numerous small particles and fragments. The majority of them have fulfilled their tasks and have absolutely no scientific

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2. Article 10 of the resolution "Legal Regime of Outer Space", adopted by the Institute of International Law at the Session in Brussels in September 1963 ("Annuaire de l'institut de droit international", 1963, t. 11, p. 371).

value. Moreover, the continuous movement of space objects along their orbits after they have fulfilled their tasks necessitates observation after them. And this leads to overburdening of the ground tracking stations.

As the number of such dead space objects is increasing, the possibility of their collision with space apparatus carrying out useful functions is not excluded. The English jurist C.W. Jenks, while referring to this problem, wrote in his report presented to the Institute of International Law: "Though it may appear that outer space has unlimited absorption capacity, it is extremely undesirable that a substantial number of space objects whose useful activity has ceased long before should remain in the orbit around the earth, moon or the nearest planets. Aside from the probable danger of collision with new and active space apparatus, this "scrap metal", as it is called, may create disturbances for the activities in outer space"[3].

In order to avert the obstruction of outer space it is essential that the States come to an understanding on reducing to the minimum the number of objects which have ceased to be of scientific and practical importance and yet move along the orbit around the earth. Such reduction can be achieved through an understanding on eliminating such dead, unnecessary objects from outer space. Probably, it would be expedient to provide for some sort of technical standards which would ensure their elimination from outer space. Thus, only those objects would remain in outer space, which perform useful functions. And this, on its part, would relieve the ground tracking stations to a considerable extent.

C. W. Jenks in the abovementioned report expressed his opinion in favor of working out precise rules which would stipulate that "the objects, launched into orbit or farther, will be equipped with devices which ensure the chance of their return or destruction on completion of their useful activities in order to avoid obstruction of outer space with apparatus which have served their purpose and create a staggering problem for the ground tracking station for tracking them"[4].

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[3] *Jenks, C.W., Le droit international des espaces celestes. Annuaire de l'institut de droit international, Bale, 1963, t.1, p.356.*

The question of stopping radio transmission from space objects after they have carried out their task is of no less importance. Such continuous transmission creates disturbances for the radio transmission of space objects carrying out useful functions. Long-term transmitting radio apparatus operating on solar batteries or other sources of energy cannot be allowed to remain in outer space objects which have fulfilled their tasks.

In 1959, the Administrative Conference on Radio Communications adopted a special resolution in which it mentioned the advisability of studying the question about the measures for stopping at the proper moment the radio transmission from the artificial satellites and other space objects. In this connection the Administrative Conference requested the International Radio Consultative Committee to study this problem. The Administrative Conference requested the members and co-members of the International Telecommunication Union (ITU), who launch satellites or other space objects, to examine this problem and communicate the findings of their study to the International Radio Consultative Committee[5].

The Extraordinary Administrative Conference on Radio Communications, held in Geneva in 1963, adopted suitable supplements to article 7 and 14 of the International Regulations of Radio Communications. Keeping in view these supplements, article 7 stipulates that "Space stations must have the possibility to stop radio waves through suitable devices (duration of operation of the batteries, instructions from the earth etc.) which will reliably ensure cessation of transmission"[6].

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[4] *ibid., pp. 356-357.*

[5] *'Resolution 7 on Radio Emission from Artificial Satellites of the Earth and Other Spaceships. Regulations of Radio Communications. Additional Regulations of Radio Communications. Additional Protocol. Resolutions and Recommendations. Administrative Conference on Radio Communications", Svyaz'izdat, 1961, pp. 515-516.*

[6] *"Zaklyuchitel'nye akty ChAKR", 1963, pp. 79-80.*

Averting potentially harmful consequences

Article 14 of the Regulations of Radio Communication reads: "Space stations must be fitted with suitable equipment for quickly discontinuing their emissions, when it is required, in accordance with the provisions of these Regulations"[7].

According to the Regulations of Radio Communications, Space Station is a station of outer space service placed on the object which is located beyond the main part of earth's atmosphere or assigned for carrying out beyond its limit or which was located beyond its limit[8].

C. W. Jenks, in his report to the Institute of International Law, expressed the hope that this concrete problem would be solved in the Regulations of the International Telecommunication Union through inclusion of rules stipulating that space apparatus be fitted with equipment which ensure either transmission when required or automatic discontinuance of transmission after a definite interval or on receiving instruction over the radio[9]. In 1963, the Institute of International Law, at its Brussels Session in the resolution on the report of C. W. Jenks, formulated its position in the following way: "The State, with whose permission the space object is launched, must ensure that each such object, as far as this is practically possible, should have suitable devices which would enable a launching State to return it on completion of useful activities or, if such return is impossible, to stop at least the radio transmission from the object and to stop any other emission"[10].

Use on the part of some States of space communication for the propaganda of war, national and racial hatred and enmity between nations may be a specific form of harmful obstruction in outer space. It is not out of place to recall the announcement the US senator A. Wiley made in the Congress in the course of

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7. ibid., p. 123.

8. ibid., p. 7.

9. Jenks, C. W., Le droit international des espaces celestes, p. 357.

10. "Annuaire de l'institut de droit international", Bale, 1963, t. 11, p. 371.

discussion over the bill on communication satellites "Such a system of communication will have not only the commercial importance. It may have enormous influence on our competition of propaganda with the Soviet Union. With the help of such system of communication we shall be able to transmit the real picture of our American way of life to the broadcasting stations, which, on their part, will be able to carry it to the houses of the Africans, Asians, Russian and Chinese Communists. We must penetrate the iron curtain and reach Russia."[11].

Experiments with scattering in outer space of a large number of copper needles (dipoles), carried out by the USA in accordance with the project "West-Ford" in 1961 and in 1963, are examples of obstructing outer space. These experiments were necessary for working out the system of space communication between the American armed forces and their military bases scattered all over the world.

Such obstruction of outer space near the earth may not only obstruct the progress of radioastronomy but also create danger for space flights by man.

The problem of averting biological, radioactive and chemical contamination of outer space and of the earth therefrom also requires careful study. The assumption that the States launching objects into an orbit around the earth or in the direction of celestial bodies are dutybound to adopt necessary precautionary measures against biological, radioactive or chemical contamination of outer space has been universally recognized nowadays. Freedom of access to outer space for all States has in view freedom of exploration and uses of outer space and celestial bodies in their natural condition. But this does not authorize the States to violate the natural condition of the earth through harmful experiments in outer space.

The Moscow treaty on banning the Tests of Nuclear Weapons in the Atmosphere, Outer Space and Under Water has great significance for averting contamination of outer space with radioactive products. It is wellknown that the nuclear explosions

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[11] Cited from Cheprov, I., Monopolii rvutsya v kosmos, "Mezhdunarodnaya zhizn'", 1963, No.12, p.56.

at high altitude (up to 800 kilometers),conducted by the USA in 1962 on the Pacific Ocean in the region of Jonston Island, resulted in the violation of the upper conducting layers of the atmosphere, creation of radioabsorbing regions and emergence of a new belt of fatal radiation around the earth[12]. Nowadays, the danger of contamination of outer space with radioactive products has been considerably reduced due to strict observance of the Moscow Treaty on partial ban on tests of nuclear weapons as well as the UN General Assembly resolution 1884 (XVIII) on abstaining from launching any object carrying nuclear weapon into an orbit. Moreover, it is necessary to adopt necessary measures for studying and averting the chances of similar contamination in view of the future use of nuclear installations on the space objects as rocket engines and energy sources.

In the opinion of the foreign specialists, nuclear rockets will be able to carry a heavier payload to a considerably greater distance than the present day rockets operating on chemical fuel. The tests of the reactors "Kivi" and "Nerva", carried out in the USA in August-September 1964, indicate that nuclear engines will have specific impulse of 750 seconds[13], whereas the specific impulse of the chemical rocket engines used in the USA at present is only 300-450 seconds. What does it mean in the sense of useful load in a space flight will be evident from the following comparison : ''Saturn - 5'' - a rocket meant for launching a spaceship to the moon, which operates in all the three stages on chemical fuel, can in case of straight flight, deliver 27,000 pounds (nearly 12.2 tons) on the surface of the moon. If nuclear engine is used in place of the third stage of this rocket, this very rocket can, in case of straight flight, deliver 47,000 pounds (21.3 tons) on the moon. This is sufficient for ensuring a lunar expedition calculated for 30 days.

According to a communication in the American newspaper ''Baltimore Sun'' the USA intends to test a nuclear engine in the flight in the beginning of 70s, and to use it regularly by 1975[14]. It should, however, be kept in view that the prospect of using nuclear energy in outer space is fraught with much greater danger than its use on the earth (radioactive fallouts in the space near the earth and radioactive contamination).

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[12] *See Ioirysh, A.I. i M.I., Lazarev, Atom i kosmos, pp.24-27.*

[13] *Specific impulse - this is the unit of power of the rocket engines. It is defined as the number of pounds of traction of the engines per pound of fuel which burns in one second.*

Nuclear installations may also solve the important problem of providing a space object with source of electric power. A portable atomic power station or an installation for transforming the energy of radioactive isotopes into electric power can be installed on such object.

The moments of start and landing of a space object carrying a nuclear installation on board as well as radioactive fallouts during the flight of this object in the space near the earth are most dangerous from the point of view of radioactive contamination. The possibility of explosion at the time of start or landing of such object and, consequently, radioactive contamination of the locality is not excluded.

In this context, international understanding regarding the measures for averting the danger of radioactive contamination from nuclear installations used on space objects as rocket engine and power source assume great importance.

The problem of averting radioactive contamination of outer space also arises in connection with the plans of concluding an international agreement on the question of removal from the earth and dumping into outer space of radioactive byproducts which were linked with the operation of atomic reactors for peaceful purposes. Removal of such byproducts is a great problem for mankind. It is well-known that the USA and England dump the radioactive byproducts into the seas and oceans. The containers of these dangerous substances disintegrate under the effect of saline sea water and the radioactive elements enter into water and thereby enhance its natural radioactivity.

As the atomic industry will develop, the importance of the problem of removal of radioactive byproducts will also increase. Academician P. L. Kapitza, Director of the Institute of Physical Problems under the Academy of Sciences of the USSR, in this connection proposed to send dangerous radioactive byproducts to outer space with the help of rockets[15]. As I. Cheprov rightly said, such disposal of radioactive substances with the help of rockets will, at present, be very costly[16].

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[14] *"Za rubezhom", 1965, No. 7, p. 29.*

Scientists had long been studying the problem whether life and organic substances exist on other celestial bodies. Some scientists accept the possibility of existence of spore forms of microorganisms, which are highly resistant to external unfavorable effects, in outer space. It is considered that conditions favorable for the existence of such organisms may exist under the upper layer of soil on the moon. At the same time, remains of apparatus sent from the earth are lying on the surface of the moon. Quite naturally the question arises : Have not they brought there the microorganisms from the earth, which are dangerous for the lunar forms of life ? Majority of the scientists think that there is no such danger, firstly, because there is no life on the moon; secondly, because conditions on the moon are so much unfavorable to the microorganisms from the earth that even if they were carried there, they would almost surely perish.

That is why American specialists were not adopting any precautionary measure while launching space objects to the moon. First American "Ranger" space stations were subjected to sterilization, but later on this practice was discontinued because the mechanism in the stations, it was found out, did not work so well after the sterilization.

Some scientists still think that certain measures for avoiding contamination of the moon with microorganisms from the earth maybe useful. There is a proposal, in this context, to adopt certain precautionary measures while launching manned apparatus to the moon. In particular, it is proposed to prepare these apparatus for the flight in special super-clean premises having controlled atmosphere, not to drop any biological waste product out of the apparatus during the flight because it may prolong the flight alongside the apparatus and reach the moon, and to leave the biological waste products on the surface of the moon only in hermetically sealed containers. The question of sterilization of objects launched from the earth for flight to Mars, Venus and other planets of our solar system should be decided depending on the conditions prevailing on the planet in question. The radioastronomical investigations, for examples, show that the surface of Venus appears to be hot lifeless desert : temperature of the equatorial part of the planet is 400°C, and in circumpolar regions it is less by 150°C[17]. Despite considerable success in the study of Venus, her nature, however, still remains a puzzle. Many secrets of this planets are yet to be unveiled. The question about the measures for avoiding the danger of contaminating Venus with microorganisms from the earth should be decided accordingly. The same question with respect to Mars and other planets should, evidently, be decided in the same way. Till recently, majority of scientists were inclined to accept the hypothesis about the existence of life, plant life in particular, on Mars. But the recent data indicate that conditions on Mars are much more severe than on the moon (strong radiation, absence of moisture and oxygen, terrible cold from - 70°C to - 100°C). Of course, this does not prove that living organisms are absent on Mars. And if this is so, it is quite evident that the contamination of Mars with microbes from the earth may create considerable difficulty in detecting life on this planet. The possibility of future adoptability of the earth microbes to the conditions on Mars and then destroying other forms of life there is also not excluded. As a result, earth microbes carried to Mars may be accepted as local, Marsian microbes. Hence, it is clear how important is the sterilization of spaceships sent to Mars[18].

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[15] *See Kapitza, P., The Future of Science, "Bulletin of the Atomic Scientists", Chic., 1962, April, p.6.*

[16] *Cheprov, I.I., Pravovoe regulirovanie deyatel'nosti v kosmicheskom prostranstve, "Kosmos i mezhdunarodnoe sotrudnichestvo", Izd-vo IMO, 1963, p.73.*

There is also the possibility of bringing from outer space to the earth the exobiotic organisms dangerous for man. We know many examples when organisms, on entering into a new medium, begin to multiply very quickly and replace the original inhabitants. The rabbits, for example, which were brought to

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[17] *See "Izvestiya", September 13, 1965.*

[18] *"Izvestiya", July 6, 1964.*

Australia multiplied very quickly and became literaly the plague for agriculture. Unusual microorganisms, with which human organism did not come in contact before and did not develop immunity against them, may cause terrible epidemics. One may find an interesting illustration of this assumption in the scientific fiction of H. G. Wells "The War of the Worlds". American scientist J. Lederberg, member of the section of Space Sciences of the National Academy of Sciences of the USA expressed an opinion in 1960 to the effect that bringing in life on the planet from without may, in certain conditions, lead to tempestuous growth of the imported organisms with the consequences of geochemical nature. When the period of multiplication is 30 minutes and there is the possibility of quick spreading through air and water, a simple bacteria may, in his opinion, occupy a culture medium of the size of our earth within a few days or weeks and only the deficiency of nutrient can restrict its propagation[19].

Though J. Lederberg thinks that the possibility of bringing to the earth some new exobiotic disease, which would threaten health or even existence of man, is highly doubtful, such a danger still exists. In the opinion of English jurist C.W. Jenks such contamination of the earth from outer space would go against "the general obligation of not causing illegal harm to the neighbor, which is the essence of all developed legal systems and which is practiced more widely in modern international law"[20]. Hence, many jurists propose to incorporate in a future agreement the provision for the need of avoiding contamination of outer space and of the earth from outer space.

The Institute of International Law, in its resolution adopted in September 1963, formulated this in the following manner: "The State with whose permission a space object is launched, must ensure the adoption of necessary precautionary measures against biological, radioactive or chemical contamination of outer space or celestial bodies as well as against similar contamination therefrom. International collaboration should be organized in this field"[21].

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[19] *See Lederberg, J., Exobiology - Experimental. Approaches to Life beyond the Earth, "International Space Science Symposium" Proceedings. Amsterdam, 1960.*

[20] *Jenks, C. W., Le droit international des espaces celestes. "Annuaire de l'institut de droit international", Bale, 1963, t. 1, p. 357.*

Scientific literature also raises the question about the necessity of concretizing this general provision through the formulation of rules for averting or decreasing the harmful consequences of probable contamination of outer space or of the earth from there.

Formulation of legal norms which would provide for the sterilization of interplanetary flying apparatus and other necessary prophylactic measures for avoiding contamination is of prime importance. In particular, it is proposed to reach an agreement on measures like external as well as internal sterilization of space objects. Now we are concerned with automatic apparatus because the problem of sterilization of manned ships for flight to other planets is not yet ripe, as it is a matter of the future. Such an object should be kept for a long period at high temperature at which all the microbes will perish. The scientists estimated that an object should be kept at 145°C for 36 hours in order to minimize the chance of carrying even one living cell to the planets up to the hundredth percent. In case the thermic sterilization proves to be inadequate, it is proposed to sterilize an object chemically, for example, by treatment with ethylene oxide.

Thermic sterilization may adversely affect the subsequent operation of the systems. Hence, special heat-proof equipment should be used for the apparatus under sterilization. After sterilization, the object should be encased in a protecting cover so that new microorganisms do not fall on it. It is necessary to install the object on the carrier rocket in this cover and then to launch into outer space. The cover should be removed after the rocket attained a certain height. For the purpose of determining the optimum height at which the cover is to be removed, it is necessary to carefully study the upper atmosphere of the earth with a view to finding out up to what height the microbes inhabit in the atmosphere. The possibility of emergence of microorganisms, inhabiting in the upper strata of the atmosphere, on an object not protected by the cover should be avoided. The Soviet automatic interplanetary station ''Venus-3'' which reached the planet Venus on March 1, 1966 and delivered on its surface a pennant with the emblem of the USSR, was subjected to thorough sterilization so that the microorganisms from the earth were not carried to the surface of Venus.

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[21] *"Annuaire de l'institut de droit international", Bale, 1963, t. 11, pp. 371-372.*

At the present stage of development of cosmonautics there is no necessity to sterilize absolutely all automatic interplanetary stations to be launched in the direction of Mars and Venus. So far as there is no plan to land a space object on the planet or deliver instruments on it, it is quite enough to adopt necessary precautionary measures so that the chance of a nonsterilized object falling on the planet is eliminated. While launching the American apparatus ''Mariner IV'' which was to fly past Mars, the trajectory of the apparatus allowed the probability of its falling on Mars by no more than three thousandth percent. If the apparatus moved into another trajectory, the corrective engine installation on board should have started operating. But even in this case, measures were adopted for avoiding contamination of Mars with earth microorganisms which could penetrate the compressed nitrogen used in the exhaust nozzles which are essential for orientation of "Mariner-IV". Since the nozzles functioned during the entire course of the flight, microorganisms thrown out of them with nitrogen could fall on Mars. Though the chance was so little, it was decided to adopt certain prophylactic measures: compressed gas was released through two filters which, according to calculation, should have minimized the chance of earth microorganisms falling in the space surrounding Mars up to ten milliardth percent.

The scientists are also solving the problem of averting the risk of bringing microorganisms from other celestial bodies to the earth. However small is the chance of existence of microorganisms on the moon, it is necessary to adopt all possible measures for averting their harmful effect on the forms of life on the earth.

Lunar microorganisms may reach the earth along with the cosmonauts returning from the moon. Hence, it is proposed to adopt appropriate measures for disinfecting the spaceship return ing from the moon, all its contents, firstly, the hermetically-sealed containers with lunar samples and the spacesuits of the cosmonauts. The cosmonauts on landing must be quarantined for several weeks. The members of the special team which disinfected the spaceship should also be quarantined. The containers with samples brought from the moon should be opened after taking all precautionary measures. Evidently, the picture reminds one of the conditions of work with radioactive substances : hermetically-sealed chambers, manipulators, masks, rubber gloves etc.

Some scientists even go further and propose to carry out examination of all abovementioned items at the quarantine space station. The scientists also think that it will be better to carry out the first and most responsible investigations of samples brought from outer space not on the earth, but in the spaceship in a specially equipped laboratory.

Thus, the measures of legal nature should help to avert the obstruction and contamination of outer space as well as contamination of the earth from outer space. In course of a detailed study of this problem with a view to concluding appropriate international agreement, the following questions emerged:

1. What are the meanings of obstruction and contamination?
2. In case of controversy, who is to decide whether there is obstruction or contamination : the UN General Assembly, the UN Committee on Outer Space or some other international agency ?
3. What is the nature of responsibility in the event of obstruction or contamination and who should be held responsible ?

Obstruction or contamination of outer space as the result of activities of individual States in outer space creates the ground for demanding compensation from the guilty State for the damage caused. There is already a precedent in this respect. It is well-known that the US Government was compelled to pay 2 million dollars to the Japanese Government as compensation for damage caused to the Japanese citizens as a result of thermonuclear tests in 1954. Despite the justification given by the USA, there exists the fact of accepting judicial responsibility for damage caused by radioactive contamination[22].

Quite naturally arises the question: Should a distinction be made between the responsibility for damage caused by obstruction or contamination of outer space and the responsibility for damage caused by space objects, launching of which does not lead to obstruction or contamination of outer space ? We think that the responsibility for damage caused by obstruction or contamination of outer space has its own peculiarities and hence requires special legal regulation. The fact is that the damage caused by obstruction or contamination of outer space can be much more serious than the damage caused by, say, simple fall of a space object or its part on the earth.

It is possible that the establishment of different responsibility for damage caused by obstruction and contamination of outer space is required on this ground. Usually, contamination may cause greater damage than obstruction.

All these questions require more detailed study. In this connection, main attention should be devoted to the formulation of legal ways for stopping experiments involving potentially harmful consequences in outer space.

The principle of free access to outer space on the part of all States does not authorize some States to act to the detriment of others. Hence, the States should refrain from potentially harmful consequences of experiments in outer space or from any activity which may interfere in the peaceful use of outer space by other countries. The Interparliamentary Union, in its resolution adopted on September 20, 1963, appealed for this, in particular[23].

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[22] *See Usachev, I. G., Moskovskiĭ dogovor o chastichnom zapreshchenii ispytaniĭ yadernogo oruzhiya i mezhdunarodnoe pravo (Moscow Treaty on Partial Ban on Tests of Nuclear Weapon and International Law), "Sovetskoe gosudarstvo i pravo", 1964, No. 3, p. 76.*

[23] *See "Sovremennye problemy kosmicheskogo prava", p. 393.*

The Interparliamentary Union, at its conference held in April 1964, in Lucerne (Switzerland) adopted an urgent appeal to national parliamentary groups for recommending to their governments through the parliaments "to refrain from all kinds of experiments in outer space as well as any activity which may disturb peaceful use of outer space by other countries".

The International Astronomical Union, at its meeting held on August 24, 1961 in the USA, unanimously adopted a resolution requesting all the governments interested in conducting experiments in outer space, which may disturb astronomical investigations, to consult the International Astronomical Union before conducting such experiments and to refrain from such experiments till it is definitely established that no damage will be caused to astronomical investigations[24].

The question about warding off potentially harmful consequences of experiments in outer space has also been dealt with in the first report of the World Meteorological Organization on the progress in developing sciences about the atmosphere and their practical application in view of the success in the field of exploration of outer space.

The report states that man will finally be in a position to influence weather and even climate on a large scale, and emphasizes that "accurate prevision and evaluation of these consequences, which may follow the violation of existing climatic balance by man on a large scale, are absolutely necessary"[25].

SETECS, set up as a Special Committee of the International Council of Scientific Unions in March 1958 and gained the status of a Permanent Committee in the month of October of the same year, was also seized of the problem of averting potentially harmful consequences of experiments in outer space. The session of this Committee in May 1958 prepared a report which warned about the danger of contamination of celestial bodies and made an appeal for earliest formulation of a code of rules for warding off the danger of such contamination[26]. The session of the Committee in March 1959 prepared a second report which reiterated the fundamental provisions of the first report. Subsequently, the plenary power of SETECS was transferred to COSPAR. The International Council of Scientific Unions, in a resolution adopted at its plenary session held in London on September 25-28, 1961, requested the COSPAR to examine all the proposed experiments or other activities in outer space, which may have potentially harmful effect on scientific investigations or observations. The Committee was requested to organize their thorough, objective and all-out investigation. The COSPAR must supply the Unions, academies and governments the facts and results of investigations which are essential for adopting intelligent and correct decisions. The International Council of Scientific Unions appealed to all the governments to supply information and data on proposed experiments so that the desirable investigations can be conducted[27].

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[24] Jenks, C. W., *Le droit international des espaces celestes, p. 351.*

[25] *ibid., p. 152.*

In order to carry out these tasks, the COSPAR, in May 1962, set up a Special Consultative Group[28]. This Group prepared a report on potentially harmful consequences of experiments in outer space, which was placed before the General Conference of COSPAR, held in May 1964 in Florence. The General Conference of the Committee adopted a special resolution[29] on the basis of this report. This resolution approved the conclusions of the Consultative Group regarding the little possibility of harmful contamination of the upper atmosphere of the earth due to launching of superpower rockets and waste products of fuel produced by them. At the same time the COSPAR entrusted its constituent scientific organizations to report about any new large experiment which may lead to harmful contamination. Besides, the COSPAR expressed the desire that the abovementioned scientific organizations should encourage further investigation of the following problems : evaluation of the process of austausch among the different strata of the upper atmosphere, particularly between 60 and 100 km; the degree of short-term and long-term local and zonal contamination of the upper atmosphere by rockets; possibility of any catalyzing phenomena which may cause chemical and photochemical processes in the upper atmosphere, radiation balance in the upper atmosphere and its dependence on the change in atmospheric constituents.

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[26] *See "Sovremennye problemy kosmicheskogo prava", p. 368.*

[27] *ibid., p. 244.*

[28] *See "COSPAR, Information Bulletin", January 1963, No. 18, pp. 14-16.*

[29] *"COSPAR, Information Bulletin", November, 1964, No. 20, pp. 25-26.*

In connection with the execution of the second experiment under the project "West-Ford" in USA in May 1963, the COSPAR expressed the view that in future the projects of similar type of experiments should be thoroughly evaluated by the scientific community, mainly by the International Astronomical Union in order to establish before hand their harmlessness for other scientific investigations.

The COSPAR announced in its resolutions that the search for life beyond our earth was an important task of outer-space explorations and that in foreseable future the planet Mars may present only real possibility in this respect. Contamination of Mars may not only complicate such search but also deprive us, possibly for ever, from the achievement of this target.

In this connection the COSPAR drew the attention to the necessity of adopting practical measures with a view to averting biological contamination of Mars. In order to avert such contamination, in the opinion of the COSPAR, the collaboration of States, launching rockets deep into outer space, is essential. This collaboration should promote necessary planning of experiments and application of similar methods of sterilization of spaceships.

The COSPAR recommended to bring the degree of sterilization of space apparatus to such a level at which the chance of one living microorganism remaining on board of such apparatus is not more than 1:10,000. This is about such apparatus which should land on a celestial body or penetrate the atmosphere surrounding it. The space apparatus, which are meant for launching into an orbit around a celestial body or flying past it at adequate distance, do not require such sterilization. However, the chance of their accidental collision with a celestial body should not exceed 3 : 100,000.

The COSPAR in its resolution drew attention to the opinion expressed by its Consultative Group regarding the requirements of sterilization of spaceships in case of landing on the moon. The Consultative Group of the COSPAR thinks that there is no necessity of so thorough a sterilization for landing on the moon because conditions prevailing on the surface there, in all probability, exclude the possibility of propagation of microbes. Exception should be made, in the opinion of the Consultative Group, in case of drilling equipment on the moon. It is desirable that such equipment should be subjected to thorough sterilization with a view to averting the contamination in the deep layers of lunar surface, where more favorable medium for the propagation of microbes may exist.

The COSPAR appealed to its members, who are connected with probing of the planets, to try to attain a certain level of sterilization. As long as this level could not be attained, it was proposed to refrain from launching rockets, aim of which is to enter the atmosphere of planets or land on them.

The COSPAR requested all its members to communicate their disagreement or objections regarding aims and provisions laid down in this resolution and in the report of the Consultative Group. In this context the hope was expressed that the Consultative Group could take up further study of the problem of biological contamination of the moon and other planets, after taking into consideration the communication and opinions of the members of the Committee.

The COSPAR authorized the Consultative Group together with the Chairman of the V Working Group (space biology) to prepare for the convocation of the international conference on biological sterilization and technique of verifying sterility. Participation of the scientists of two leading space countries is mentioned as the preliminary condition for the convocation of such a conference. The V Working Group held a meeting on the May 18, 1965 in connection with the convocation of such a conference[30].

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[30] *See "COSPAR, Information Bulletin", October, 1965, No. 26, pp. 47-49, 54-55.*

The UN General Assembly, at its XX session held in 1965, took into consideration the resolution of COSPAR on potentially harmful consequences of experiments in outer space [resolution 2130 (XX) dated December 20, 1965]. It should be kept in view that the United Nations Organization pays great attention to the problem of averting potentially harmful consequences of experiments in outer space.

The Declaration of Legal Principles regulating the Activities of States in the Field of Exploration and Uses of Outer Space, approved by the UN General Assembly on December 13, 1963, devotes a special article to this problem. It says : "In course of exploration and uses of outer space the States should be guided by the principle of collaboration and mutual help and must carry out all their activities there with due consideration for similar interests of other States. If any State has reason to think that the activities in outer space or the experiment planned by this State or by the citizens of this State will create potentially harmful disturbances for the activities of other States in peaceful exploration and uses of outer space, then this State must resort to appropriate international consultation before undertaking such activities or experiment. A State, which has reason to think that the activities in outer space or experiment planned by another State will create potentially harmful disturbances for the activities in peaceful exploration and uses of outer space, may ask for consultation on carrying out such experiment"[31].

The Soviet proposals went still further. They proposed preliminary discussion and agreement on such experiments. It should be noted that the David Davies Memorial Institute of International Studies in England also expressed opinion in favor of preliminary agreement on international basis for experiments which may cause unfavorable effect in the space near the earth.

The Scientific and Technical Subcommittee of the UN Committee on Outer Space, at its third session held in June 1964 at Geneva, devoted special attention to the necessity of averting potentially harmful consequences of experiments in outer space. The recommendations of the Scientific and Technical Subcommittee were incorporated in the report of the UN Committee on Outer Space, which was placed before the XX session of the General Assembly. In the resolution 2130 (XX) dated December 20, 1965 " International Collaboration in using Outer Space for Peaceful Purposes" the General Assembly approved the recommendations of the Scientific and Technical Subcommittee on averting experiments which have potentially harmful consequences, which were incorporated in the report of the UN Committee on Outer Space.

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[31] *See "Sovremennoe mezhdunarodnoe pravo. Sbornik dokumentov", p. 254.*

In this report the Subcommittee requested all the States, which propose to conduct experiments in outer space, to examine the question of probable obstacles which these experiments may create for other types of uses of outer space for peaceful purposes. It also requested to examine the question of probable harmful changes in the natural medium as a result of activities in outer space. In such cases when the States will find this expedient, the Subcommittee recommends to ask from the Consultative Group of the COSPAR the scientific analysis about the qualitative and quantitative aspects of these experiments and to study properly the results of this analysis.

The Subcommittee expressed the opinion that the COSPAR should be requested to inform the UN Committee on Outer Space about the results of all analyses carried out by the Consultative Group of the COSPAR, which the Executive Council of COSPAR may consider necessary to propagate. The resolution of the Subcommittee emphasizes that such procedure does not exclude the possibility of conducting international consultations as envisaged in the Declaration of Legal Principles regulating the Activities of States in the Field of Exploration and Uses of Outer Space, approved by the General Assembly of the UN on December 13, 1963 [resolution 1962 (XVIII)].

It should, however, be kept in view that for the organization of such consultations it may be necessary to clarify the following questions:

1. When such consultations are to be held - immediately before the experiment or long before ?

2. With whom to conduct such consultations - with a certain group of States, with all the States showing interest or with any international agency ?

3. What is the purpose of international consultations and how far the States are obliged to take them into consideration ?

Such are the questions which are to be faced unavoidably while preparing for an appropriate international agreement.

CHAPTER VII

LEGAL PROBLEMS OF OUTER SPACE RADIO COMMUNICATION

Outer space radio communication has assumed special importance because of the flights of artificial satellites of the earth, spaceships and automatic interplanetary stations to other planets of the Solar system. It is necessary to transmit from a space object a large number of information about the structure of the planets, universe, radiation of the sun, the physical condition of the cosmonauts, the operation of the measuring apparatus and other scientific data. Radio communication is the connecting link between the ground stations and the objects launched into outer space. Maintenance of radio link among the crew of spaceships in flight is also of great importance.

Great possibilities for the development of cultural intercourse among the countries and peoples are opening up in view of the prospect of setting up world communication system (telephone, telegraph, television) by using artificial satellites as active relay stations. Space communication as the new means of intercourse among the people must assist in bringing the countries and peoples closer to each other for strengthening peace. All the bands of radiowaves, up to the wave length of the order of millimeter, are being used for the transmission of signals in modern radio technology. Since the relation f = C/F exists between frequency of oscillations (F) and length of the wave (f) produced by them, where C is the speed of transmission of radiowaves (speed of light = 300,000 km/sec), the band of radiowaves determines the band of radio frequencies.

Consequently, the following system has been adopted for dividing the frequency bands and radiowaves:

From 3 to 30 kilocycles (superlong waves from 100 to 10 km)
from 30 to 300 Kcs (long waves from 10 to 1 km)
from 300 to 3,000 Kcs (medium waves from 1,000 to 100 m)

from 3 to 30 Mcs (short waves from 100 to 10 m)
from 30 to 300 Mcs (ultra short waves from 10 to 1 m)
from 300 to 3,000 Mcs (ultra short waves from 100 to 10 cm)
from 3 to 30 Gcs (ultra short waves from 10 to 1 cm)
from 30 to 300 Gcs (ultra short waves from 10 to 1 mm)
from 300 to 3,000 Gcs (ultra short waves from 10 to 1 dm)[1]

Space radio communication can be defined as radio communication service between ground and space stations, between space stations as well as between ground stations when signals are relayed by the space stations or transmitted through reflection from the objects located in outer space, except reflection or dispersion by ionosphere or within the earth's atmosphere.

Reception and transmission of radio waves from outer space mainly depend on the accuracy of the selection of wave length and frequency at which the communication is made. The wave length is selected after taking into consideration that they have to break and pass through, without becoming weak, three ionized layers of the earth's atmosphere. Waves with minimum frequency 20-30 Mcs (wave length 15-10 m) are required for reception and transmission of radio wave from outer space. Use of electromagnetic oscillation with frequencies from 100 to 1,000 Mcs (ultra short wave length from 3 m to 30 cm) is nowadays considered most admissible for radio communication with spaceships in the space near the earth. Ultra short waves do not reflect from the ionosphere located at (60-400 km from the earth, but freely penetrate into the surrounding space. That is why it is profitable to use them for communication with space objects and in communication and television systems with satellite relay stations. Too short waves are, however, useless for radio communication of a spaceship with the earth (for example, millimeter waves), because they are absorbed by the clouds, atmospheric precipitations and fog. So, the research which is being conducted in the Soviet Union for studying the conditions of propagation of radio waves in outer space has great importance.

"Study of the concentration of charged particles in the ionosphere with a view to investigating the propagation of radio

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[1]. M —Mega (10^6), G —Giga (10^9), K —Kilo (10^3).

waves" was particularly mentioned as one of the tasks of the launching of "Kosmos" series of satellites in the communique of Tass of March 17, 1962 [2]. The possibility of establishing reliable radio link between artificial space objects was proved in practice for the first time when the group flight of soviet spaceships "Vostok -3" and "Vostok-4" was carried out in August 1962. Alongside this, television transmission directly from spaceships to ground television stations and through them to the viewers in the Soviet Union and many European countries was carried out successfully for the first time. Similar experiments were conducted on the spaceships ''Vostok-5" and "Vostok-6".

Radio transmission for flight to other planets, for example, to Mars and Venus, will undoubtedly have many difficulties(dispersion and other energy losses, internal noise of the receiver, Doppler effect and other outer space disturbances). The Soviet radio engineering is successfully working for overcoming these unavoidable difficulties in order to provide radio link for long and superlong distances.

The flight of the automatic interplanetary station "Mars -1", launched on November 1, 1962, in the neighborhood of the planet Mars was a great success of the Soviet science and technology in the field of establishing distant space communication. The communication at a distance over 100 million kilometers was established from the station.

An outstanding achievement of the Soviet radio engineering in the exploration of outer space was the radio location of the planet Mercury, which was carried out for the first time in the world in 1962, and the establishment of radio link through the planet Venus. The words ''Lenin", "USSR","Peace", transmitted from the earth in telegraphic code, reached the planet Venus and were received back on the earth after reflection from the surface of the Venus.

The communication satellites "Molniya -I" were successfully launched into a high elliptical 12-hour orbit on April 23 and October 14, 1965 in the Soviet Union. Experimental investigations of the systems and the calculated data have shown that the communication satellites "Molniya -I" can ensure transmission of programs of not only black-and-white, but also colored television or transmission of multichannel telephonic, telegraphic and phototelegraphic communications between the USSR and the countries of northern hemisphere, including the USA, France, England, Japan and Cuba. There is no doubt that in future operation systems the experience of communication satellites "Molniya -I" may be of immense use.

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[2] *"Izvestiya", March 17, 1962.*

In the recent years the USA has achieved considerable success in using the satellites for distant radio link and television. In April 1965, the American corporation "COMSAT", coordinating its activity with Canada, England, Japan, Federal Republic of Germany and other countries, launched the satellite "Early Bird" into a synchronous orbit for experiemental purposes. Commercial telephonic radio link was established and also transmission of the same program of black-and-white television was achieved through this satellite between the USA and the West European countries.

Concentrated sources of light may be particularly promising for super-distant space communications. The instruments prepared by Soviet radio engineers make it possible to obtain strong directional light rays which are capable of reaching the most distant regions of the universe almost without any loss[3]. Quantum radiophysics is making the way towards this. The Soviet Scientists have found it possible to set up a quantum generator which is capable of producing strong direction of light flux. The quantum generator is opening up before man the possibility of creating strong light flux of any small diameter (thousandth and millionth part of the diameter of an ordinary needle). Such a generator with a capacity of 10-12 kilowatts can produce a flash of light which is million times brighter than the sun. Installation of quantum generator in a spaceship creates the possibility of transmitting light singals from it, of establishing communication with other spaceships and the earth. Spaceships, which have gone out from their home planets for many years, will thus have the opportunity of maintaining communication with the earth. Moreover, quantum generators will be able to provide light signalization with other worlds.

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[3] *See Artsimovich, L.A., Fantastika stanovitsya real'nost'yu (The Fantasy Becomes Real), "Nauka i zhizn'", 1961, No. 7, p.36.*

Modern achievements in the field of use of satellites for distant radio communication and television present great possibility for international collaboration among the States.

The Soviet Union is a supporter of such collaboration. In March 1962, at the session of the UN Committee on Outer Space the representative of the USSR announced the following: "Soviet scientists and specialists are prepared to participate in the review and study of technical projects and programs for setting up communication systems with the help of satellites. The Ministry of Communications of the USSR is prepared to give the International Telecommunication Union information about the operating systems of distant communication utilizing the artificial satellites of the earth and the procedure for their application on the basis of international or regional agreements on the principles of exploiting such communication systems"[4].

In accordance with an agreement between the Academy of Sciences of the USSR and the NASA of the USA, bilateral collaboration in the field of outer space communication has begun. An experiment has been conducted with the American passive communication satellite "Echo-2" which was launched into the orbit on January 25, 1964. Satellite "Echo-2" is an air sphere fixed between two joints of an aluminum foil. The upper layer of the shell has almost a mirror-like reflecting surface and is coated with heat insulating material. The observatory of the Gorki State University in Zimenki (Soviet Union) received through this satellite, on February 22, 1964, radio signals reflected from the satellite, which were sent from the English radioastronomical observatory "Jodrel Bank".

The agreement envisaged continuation of further examinations of the possibilities of collaboration between the USSR and the USA in joint experiments with the use of active satellites which can be launched by either party in future, including mutual exchange of information about the results of such experiments as well as discussion of the problem of preparation and

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4. *UN Report A/AC. 105/PV. 3.*

planning jointly with other countries, of the project of experimental global system of distant radio communication through satellites. Realization of such a system of communication will give people a reliable means of communication, create new possibilities for contacts among nations.

An agreement on collaboration in color television was concluded between the USSR and France on March 22, 1965 [5]. The agreement stipulates combination of efforts of the USSR and and France in planning and implementing a joint system of color television on the basis of the French system SEKAM. The majority of the European countries also prefer this system. Comparative tests of different systems - American (NTSC), German (PAL) and French (SEKAM) - have shown that SEKAM has greater interference elimination in case of transmission over a great distance along the operating channels of communication. Still better results were shown by the Soviet system of color television which may become the next logical stage of improvement over the system of SEKAM.

In accordance with the abovementioned Soviet-French agreement, successful experimental transmission of color television from Moscow to Paris through the Soviet artificial satellite of the earth "Molniya -1" was conducted for the first time on November 29, 1965. The colored program was transmitted according to the system SEKAM. The signal of television program came from the Moscow television center to the ground station of the USSR and then to the satellite "Molniya -I". The signal from the satellite was picked up by the ground station in Plemer-Beaudoux in France, directed from there to Paris through the radio relay channel and retransmitted by the transmitter of color television "Bute-Chaumont". The transmissions of diverse programs of color television prolonged nearly an hour.

After some time similar transmissions were conducted from Paris to Moscow. High quality of experimental transmission, conducted through the satellite "Molniya -I", creates the real possibility of switching over in future to regular exchange of color television program through outer space between Moscow and Paris.

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[5] *See "Izvestiya", April 30, 1965.*

The prospect of development of outer space radio communication raises a number of problems of international law on the solution of which depends to a considerable degree the collaboration among States in this field. The problems of outer space radio communication are being discussed by the United Nations Organization.

The UN General Assembly in its resolution 1721 (XVI) drew the attention of all the States to the fact that "communication through satellites must be accessible to all States on an universal basis without discrimination", and in resolution 1802 (XVII) emphasized the "importance of international collaboration for achieving effective communication through satellites, which should be accessible on the world level ". The UN General Assembly authorized the International Telecommunication Union to prepare reports on the work carried out by this organization in the field of outer space communication and establishing international collaboration in the abovementioned problems. The reports of the ITU in 1963-1964 were examined by the Economic and Social Council, the UN Committee on the Uses of Outer Space for Peaceful purposes and its scientific and Technical Subcommittee [6].

The adoption, in 1963, at the XVIII session of the UN General Assembly, of the Declaration of Legal Principles regulating the Activities of States in the Field of Exploration and Uses of Outer Space was an important stage for the solution of the problems of legal regime of activities of States in outer space, in particular, the problems of legal regulation of activities in connection with the use of communication satellites. This Declaration contains special provisions concerning the use of communication satellites.

The International Telecommunication Union, established on the basis of the Convention formulated at the World Conference on

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[6] *"First Report of the I. T. U. on Telecommunications and Peaceful Uses of of Outer Space", Geneva, 1962; "Second Report by the I. T. U. on Telecommunications and the Peaceful Uses of Outer Space", Geneva, 1963.*

Telecommunication in 1932, has a significant role in solving the scientific, technical and legal problems concerning the use of communication satellites. The International Telecommunication Union is a specialized UN institution which coordinates the telecommunication media with the help of ground lines, subwater cables and radio. The highest body of the ITU is the Plenipotentiary Conference of the representatives of all its members, which is convoked, usually, every five-six years. Besides, Administrative Telegraph and Telephone Conference and Administrative Radio Conference, which are held simultaneously with the Plenipotentiary Conference, are also leading bodies of the ITU. The Administrative Council and the Secretariat General are the executive agencies.

Distribution of the bands of radio frequencies among the different radio services is one of the most serious problems of coordination of the activities of the States in the field of radio communication. This problem is handled by two permanent agencies set up under the ITU -- the International Frequency Registration Board (IFRB) and the International Radio Consultative Committee.

The IFRB maintains a record of frequency appropriation made by different countries in conformity with the Radio communications Regulations of the ITU, recommends the most effective use of the radio frequencies etc.[7].

The International Radio Consultative Committee is a scientific research agency, which, at its plenary sessions held once in three years discusses the most important technical problems of radio communication and recommends the measures which should be adopted by the ITU or its members. Special research commissions are set up by the plenary meeting of the IRCC for the purpose of detailed study of various problems of radio communications[8].

Clear distribution of radio frequencies among the users is essential for avoiding or minimizing the possible effect of interferences on radio communication, which are produced by natural or artitifical factors.

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[7] *"International Convention on Telecommunication, 1959", Geneva, 1960, pp. 20-22.*

[8] *ibid., pp. 22-23.*

Distribution of the bands of radio frequencies among different radio services in the radio spectrum which is restricted by the existing level of development of technology is a very complicated task. Sometimes, it is not possible to solve this problem satisfactorily not only in international distribution but also within a particular State.

Thanks to technical progress, the use of radio frequency spectrum is constantly widening. This is evident from the tables of distribution of frequency bands among the radio services which were accepted at the international conferences on radio communications. The Main Radio Communication Regulations, reviewed in Cairo in 1938, distributes for use the band of frequency from 10 Kcs to 200 Mcs. The Radio Communication Regulations, adopted in 1947 in the Atlantic-City (USA), distributes for use the band of frequency from 10 Kcs to 10,500 Mcs. The Radio Communication Regulations, adopted in Geneva in 1959, distributes for use the band of frequency from 10 Kcs to 40,000 Mcs. The new fields of application of radio have, however, considerably increased the demand for frequencies when compared with the earlier systems. Further distribution of these frequencies is becoming more and more difficult and this is being done now mainly through rescheduling the existing services[9].

The radio frequency spectrum has been distributed among various operating radio services. Some bands have been fixed for radio communication, broadcasting and television, air, naval, ground and mobile radio services, radio navigation, service of transmitting standard frequencies, signals of exact time and other radio services. Any new allocation of radio frequency, change in the frequency bands or fundamental technical characteristics of the systems to which the frequency bands are allocated (location of the radio transmitter, its capacity, zone of reception, nature of work, necessary width of the band, direction of maximum transmission, hours of work etc.) should be made in such a way that the resulting interference should be minimum for the users of radio frequencies allocated to them according to internal distribution or international plans.

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[9] *See Erigin, D.D., K voprosu vydeleniya i mezhdunarodnogo regulirovaniya radiochastot dlya kosmicheskikh sluzhb (The Problem of Distribution and International Regulation of Radio Frequencies for Outer Space Services), "Kosmos i mezhdunarodnoe sotrudnichestvo", Izd-vo IMO, 1963, p. 138.*

Any improper change in the distribution of radio frequency spectrum may not only create interference, but also paralyze the work of any of the systems and cause great damage to the national economy. Hence the International Telecommunication Union devotes great attention to the question of allocating frequencies for outer space communication.

Immediately after the launching of first artificial satellites of the earth, the research groups of the International Radio Consultative Committee undertook the study of this question[10]. On the basis of the work carried out by them, the Committee at its ninth plenary session in 1958, adopted the recommendation "Selection of Frequencies for Telecommunication with Artificial Satellites of the Earth and with Other Spaceships as well as among them "and the report ''Factors affecting the Selection of Frequencies for Telecommunication with Spaceships and among them". The provision contained in these two documents were submitted for review before the Administrative Radio Conference of the International Telecommunication Union which was held in Geneva in 1959.

The research groups were reorganized and a IV group on the problem of the systems of space communication was set up in course of the work of the ninth plenary session of the International Radio Consultative Committee. The task of this group was to study the technical problems of the systems of communication with objects in outer space and among themselves.

The Plenipotentiary Conference of the International Telecommunication Union and regular Administrative Radio Conference of the ITU were held in Geneva in 1959. The Plenipotentiary Conference of the ITU had to reexamine the International Telecommunication Convention of 1952 which was adopted in

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[10] *"Documents of the VII Plenary Assembly of the CCIR", vol. I. Warsaw, 1958, Add. No. 3.*

Buenos-Aires. However, the convention adopted in 1959 did not contain any provision devoted to outer space. With a view to somehow eliminating this flaw the Plenipotentiary Conference of the ITU adopted special resolution "Telecommunication and Uses of Objects in Outer Space for Peaceful Purposes"[11]. Mentioning the important role of telecommunication and the role of the ITU in using outer space for peaceful purposes, the conference authorized the General Secretary of the ITU:

"1. To inform the United Nations Organization and other interested international organizations about the decisions of the regular Administrative Radio Communication Conference (Geneva, 1959) and about the technical investigations undertaken by the International Radio Consultative Committee.

2. To keep these organizations posted with the progress achieved in this field in so far as the Union is interested in it"[12].

The Administrative Radio Conference of the ITU in 1959 embarked on legal regulation of the uses of the media of outer space radio communication.

Two new services: Outer space service and "earth-outer space" service, have been included in the Regulations of radio communication. On the basis of the data furnished in the Report of the IX plenary session of the International Radio Consultative Committee, the Administrative Radio Conference allocated 12 radio frequency bands with a total spread of approximately 529 Mcs for the purpose of conducting scientific research work in outer space. These bands have been included in the distribution table of radio frequencies of the International Regulations of Radio Communication.

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[11] *'Resolution 34. International Telecommunication Convention. Concluding Document of the Convention, Additional Documents of the Conference, Resolutions, Recommendations and Wishes", Geneva, 1960, pp. 107-108.*

[12] *"Resolution 34. International Telecommunication Convention. Concluding Document of the Convention, Additional Documents of the Conference, Resolutions, Recommendations and Wishes". p. 108.*

5 out of those 12 radio frequency bands were allocated on the primary basis with a total spread of 454 Mcs and 7 were allocated on the secondary basis with a total spread of 75 Mcs. It should be noted that the outer space service and the "earth-outer space" service obtained very few radio frequencies and also in such bands which ignore the practical requirements of the radio services of individual countries. Consequently, not only the Soviet Union which kept open the question of adoption of the Regulations of Radio Communication, but also the USA, which signed and ratified the Regulations, used frequencies other than those allocated by the Regulations of Radio Communication with space objects. Considering that this complicated problem has not been solved satisfactorily, the Administrative Radio Conference of the ITU in 1959 decided to convene in 1963 an Extraordinary Administrative Radio Conference exclusively for the purpose of allocation of frequency bands for outer space communication[13].

According to the resolution 1802 (XVII), following information was sought from the member States of the ITU:

a) on technical progress and new achievements in the field of outer space communication;

b) on questions requiring international collaboration for achieving the targets set in the resolution 1721 (XVI) of the UN General Assembly, and

c) on questions which should be placed in the agenda of the Extraordinary Administrative Conference on Radio Communication.

The resolution 1802 (XVII) emphasized that the Secretary-General of the International Telecommunication Union must submit a report on these questions before the Administrative Council of the Union at its next session to be held in March 1963.

The UN General Assembly considered it highly important that the Extraordinary Administrative Conference on Radio

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[13] *See "Reglament radiosvyzi 1959 goda" (Regulation of Radio Communication of 1959), Svyazizdat, 1961, pp. 599-600.*

Communication allocated radio frequency bands which are adequate for satisfying the requirements in outer space and requested the International Telecommunication Union to submit a report on the progress made in this respect to the UN Committee on Uses of Outer Space for Peaceful Purposes and to the Economic and Social Council.

The UN technical preparation for the conference was carried out by the Tenth Session of the International Radio Consultative Committee, held in January-February, 1963.

More than 400 delegates from 70 countries assembled in Geneva in October-November 1963 for the Extraordinary Administrative Conference on Radio Communication. The Conference allocated frequency bands with a total spread of 6076462 Mcs for use by the outer space services of different countries and revised the corresponding part of the Regulations of Radio Communication of 1959.

The revised version of the Regulations of Radio Communication of 1959 came into force from January 1, 1965. The Union of Soviet Socialist Republics signed the concluding documents of the Extraordinary Administrative Conference on Radio Conference of 1963.

The Extraordinary Administrative Conference on Radio Communication of 1963 gave directions to radio services and stations which are connected with radio communication in outer space. The Conference rejected the division of services into outer space service and "earth-outer space" service which had been introduced in 1959. Instead, all services were subdivided into three basic groups: 1) earth service, 2) outer space service and 3) service of radio astronomy. The outer space service incorporated: service of communication through satellites, service of outer space explorations, radio broadcasting service through satellites, radio navigation service and meteorological service using the satellites of the earth[14]. That new types of outer space radio service will appear along with further success in the conquest of outer space is not excluded. Frequency bands were allocated either for outer space service as a whole or for different types of outer space service (scientific exploration, communication, meteorology, nagivation through satellites).

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[14] *See "Zaklyuchitel'nye akty ChAKR" (Concluding Acts of the Extraordinary Administrative Conference on Radio Communication), 1963, pp. 7-13.*

The International Regulations of Radio Communication stipulates that frequencies for outer space service should be appropriated in accordance with the procedure adopted by the International Telecommunication Union. Hence, in such cases when the appropriated frequency may cause interference to some service or is intended to be used for international radio communication or its use is intended for gaining recognition, the International Frequency Registration Committee must be informed about this 90 days prior to the beginning of appropriation, but not later than 30 days after the beginning of appropriation.

Frequency bands are allocated for appropriation either on the world level or the regional level.

In respect of allocation of frequency bands the world is devided into three geographical regions: Region I includes Western Europe, Africa and the entire territory of the USSR; region 2 includes entire western hemisphere and region 3 includes entire Asia excluding the territory of the USSR[15].

However, it should be noted that this division has a definite significance for earth service of radio communication. Mechanical transfer of this division to outer space creates confusion.

In the International Regulations of Radio Communication the frequency bands are allocated not to the countries, but to the services. For Space service they are allocated on the primary or the secondary basis. When the frequency bands are allocated on the primary basis, the outer space radio service must be protected against all harmful interferences from other radio services which are authorized to use the same frequencies. In case the radio services operating on the same frequencies enjoy equal status, time factor plays the decisive role. The outer space radio services must not create harmful disturbances for the

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15. See "Reglament radiosvyazi 1959 goda", pp. 39-40.

earth services which preceded it in time, and at the same time it should be protected from the interferences of earth radio services which have been commissioned after it. If frequency bands have been allocated to outer space service as a whole or to different aspects of it on the secondary basis, they must not create harmful interferences for radio services functioning on the primary basis, irrespective of the time of latter's commissioning.

In accordance with the Regulations of Radio Communication of 1959, the stations of secondary services:

a) must not create harmful interferences for the stations of primary service to whom frequencies were already allocated or may be allocated in future;

b) cannot demand protection against harmful interferences from the stations of primary service to whom frequencies were already allocated or may be allocated in future;

c) may, however, demand protection against harmful interferences from the stations of the same or other secondary service to whom frequencies may be allocated in future.

The majority of frequency bands is allocated to outer space service for joint use with earth service. However, the specific gravity of frequency bands allocated to outer space service on the primary ground has increased considerably. This creates better conditions for the legal protection of the outer space service against the harmful interferences from the earth service. Aside from this, the new article 9 A of the Regulations of Radio Communication established a special procedure for the registration of frequencies which are being appropriated by various types of outer space service in such cases, when there is an apprehension that the use of this frequency may result in mutual harmful interferences between the earth service and the outer space service[16].

The frequency band allocated to certain outer space service is mentioned in a special table showing the distribution of frequencies according to the Regulations of Radio Communication, and also in notes to it. Besides, instructions on distribution of radio frequencies to individual radio services are incorporated in resolutions and recommendations adopted by the Administrative Conference on Radio Communication.

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[16] *See "Zaklyuchitel'nye akty ChAKR", 1963, pp.99-123.*

The obligatory force of the allocation of frequency bands to outer space services depends on the form of their allocation. Instructions on allocation of frequencies, contained in the frequencies distribution table, has the force of an international treaty after the Regulations of Radio Communication and amendments to it have been ratified. The instructions contained in the notes to the frequency distribution table also has the force of an international treaty. These instructions, however, have subordinate importance in respect of instructions contained in the table. The provisions of the resolutions of the Administrative Conference of Radio Communication have no legal force of an international treaty. Instructions in respect of distribution of frequencies, contained therein, are in the nature of wishes which should be abided by the States who are members of the ITU.

The recommendations adopted by the Administrative Conference of Radio Communication expressed certain wishes with regard to future activities of the States in the field of outer space communication. Thus, for example, the band 1525-1540 Mcs has been allocated on the primary basis to the outer space service (telemetry) in accordance with the frequency distribution table[17]. The note 350A to the table mentions that outer space stations using the frequencies in the band 1525-1540 Mcs for the purpose of telemetry may also transmit tracking signals in this band[18].

In the resolution 3 A the Extraordinary Administrative Conference on Radio Communication of 1963 mentioned the desirability of the reception of very weak signals of outer space service (telemetry) at the frequencies in the band 1525-1540 Mcs being ensured through protection against interferences from the stations of fixed and mobile earth services.

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[17] *See "Zaklyuchitel'nye akty ChAKR", 1963, p.42.*

[18] *ibid., p.43.*

The resolution 3 A contains a request to administrations, which operate in the band 1525-1540 Mcs stations of fixed and mobile earth services on the primary basis to examine the possibility of reaching an agreement on changing the category of these services from the primary to the secondary basis[19].

The frequency distribution table stipulates the operation of service of outer space exploration on the primary basis in the band 136-137 Mcs and the continuous operation of fixed and mobile earth services on the primary basis in this band. The Extraordinary Administrative Conference on Radio Communication of 1963, in its recommendation No. 7 A, considering very week signals which can be used in the service of outer space exploration,pointed out the importance of protection of the service of outer space exploration against interferences from stations of fixed and mobile earth services.

In view of this, the extraordinary Administrative Conference on Radio Communication recommended that the administrations of all regions, operating or intending to operate stations of fixed and mobile earth services in the band 136-137 Mcs, should adopt all possible measures for ensuring protection of the service of outer space exploration and closing down operation of the stations of fixed and mobile earth services as early as possible[20].

In recommendation 8A the Extraordinary Administrative Conference on Radio Communication envisages closing down of operation of fixed and mobile earth services in the bands 149.9 - 150.05 and 399.9 -- 400.05 Mcs which were allocated to the service of radio navigational satellites exclusively on universal basis[21].

In view of the fact that the International Telecommunication Union allocates frequency bands not to individual stations but to individual services, the recommendation 10A of the

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[19] *ibid., pp.168-169.*

[20] *ibid., pp.210-211.*

[21] *ibid., pp.212-213.*

Extraordinary Administrative Conference on Radio Communication has great significance. In this recommendation, the Conference, referring to the resolutions of the UN General Assembly 1721 (XVI) and 1802 (XVII) and considering that "all members and co-members of the Union are interested in and enjoy the right of just and rational uses of the frequency bands allocated for outer space communication, recommends to all members and co-members of the ITU that the uses and exploitation of the frequency spectrum for outer space communication were in line with international agreements based on the principles of justice and equality which enables to implement and jointly use the allocated frequency bands in the mutual interest of all countries"[22].

The Extraordinary Administrative Conference on Radio Communication also examined two special problems which are directly connected with outer space radio communication. First of all, the articles 7 and 14 of the International Regulations of Radio Communication of 1959 incorporated new provisions which envisages equipping the space stations with appropriate instruments with a view to stopping transmission in time after fulfilling the task set before them[23]. Besides, the Geneva Conference of 1963 in a special resolution envisaged that the provision of the Regulations of Radio Communication with respect to distress signals established for marine fleet and aircraft should also be applicable to cosmonauts and spaceships in the same way. This envisages the technical devices for the implementation of the draft agreement on rescuing the crew of spaceships in the event of distress or forced landing which is under discussion in the Judicial Subcommittee of the UN Committee on the Uses of Outer Space for Peaceful Purposes [24].

The decisions of the Extraordinary Administrative Conference on Radio Communication of 1963 was favorably received by the UN General Assembly, which in resolution 1963 (XVIII) dated December 13, 1963 considers them "as a step towards the development of radio communication in outer space''. This resolution recognizes the ''potential contribution of the communication satellites in widening the global devices of telecommunications and the possibilities created thereby for increasing the flow of information and for promoting the aims of the United Nations Organization and its institutions''.

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[22] *See "Zaklyuchitel'nye akty ChAKR" 1963, pp. 216-217.*

[23] *See chapter VI in detail.*

[24] *See chapter VI in detail.*

Despite great significance of the Geneva Conference of 1963, the process of legal regulation of the outer space Communication within the framework of the Internation Telecommunication Union is still far from realization. Only preliminary steps in the field of international regulation of the uses of outer space radio communication have been taken.

Considering this fact, the Geneva Conference of 1963 in its recommendation 9A expressed the opinion in favor of convocation of the Extraordinary Administrative Conference on Radio Communication at a suitable time for formulating further agreements on international regulation of the uses of radio frequency bands[25].

The Plenipotentiary Conference of the ITU, held at the end of 1965 in Montraux, which adopted the new International Convention of Telecommunication, had also great significance. The text of the Convention takes into consideration the existence of outer space radio communications. The resolutions of the Convention of 1959 remain obligatory till this Convention comes into force.

Present-day conditions have witnessed sharp rise in the demand for extensive exchange of information among various countries and different isolated regions of each country. Radio experts have been engaged for a long time with the problem of transmitting television programs to areas situated thousands of kilometers away from one another. The difficulties lie in the fact that the ultra short waves, used in television, propagate only in the field of direct visibility. That is why the towers of transmitting telecenters and aerials for the reception of television images are so irresistibly growing upwards. Even such tall tower aerials as the Eiphel Tower, Big Ben and others facilitate the reception of television programs at a short distance.

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[25] *''Zaklyuchitel'nye akty ChAKR'', 1963, pp. 214-215.*

A substantial drawback of such lines is the fact that it is necessary to construct numerous receiving and transmitting stations for the transmission of television programs at great distance as the distance between neighboring relay stations usually does not exceed 40-60 km. Aside from this, it is not at all possible to construct such stations in certain inaccessible areas. But what is to be done about the link among the television centers of the countries which are separated by an ocean?

The artificial satellites of the earth can be of help to communication. Usually they are called communication satellites because they can simultaneously relay telephonic and telegraphic radio communications. At present technology all over the world has witnessed two basically different technical trends of building up communication system through satellites. Differences between these two trends show the difficulties involved in installing transmitters of required capacity in the satellite.

The central technical problem for planning a line of radio communication through satellites is to set up a highly economical portable transmitter of required capacity.

Low capacity transmitters not exceeding 4 watts ("Relay", "Telestar", "Early Bird") are installed on board the communication satellites in the USA because of the restricted capacity of the American rocket carriers. This compels them to use complicated and costly ground equipment like aerial having a mirror diameter of the order of 25 m and super-sensitive receiving devices with molecular amplifiers at the intake.

Great complexity of service and unreliability of the ground apparatus compelled France, England and the Federal Republic of Germany to organize alternate operation of their ground receiving stations of the outer space communication. Under this system each of these stations operates only one week out of three during the second week it remains in the reserve and in the third week it is under routine checkup.

Experts of a number of Western countries point out the high cost of construction and exploitation of ground stations of outer space communication existing now in Europe. In view of this high cost, telephonic conversations through the American satellite "Early Bird" are charged at a high tariff. Achievements of Soviet rocket construction have enabled to select and implement another method of building up communication system through satellites by using powerful transmitters on board. Every transmitter of watts, i.e., ten times more powerful than the American communication satellite "Early Bird", and this facilitates simplification of ground equipment.

Considerable resources are required for introducing radio relay line in each populated area of the Soviet Union. Setting up of simple ground equipment for the reception of signals from the communication satellites in the populated areas is more profitable from the point of view of economy. Use of radio relay lines over a relatively small distance seems to be more practical. Selection of the orbit is of great importance for the building up of satellites communication system. Satellites moving along a circular orbit at an average height of 10,000 km can be used for setting up such a system. Satellites can be uniformly distributed over the surface of the earth so that one of them will always remain within the range of vision of two stations which desire to maintain link between themselves. Break in the duration of performance through each satellite and technical complication because of the necessity of frequent switch over of the receiving and transmitting stations to another satellite are the drawbacks of this system. American "Telestar" type satellite, for example, at the amximum height of 10,000 km provided link between the USA and Europe for not more than an hour. Because of this, experiments are being carried out in the USA over a system of communication through three satellites which move around the earth along high synchronous orbits. (A circular orbit at a height of approximately 36,000 km is called synchronous orbit). A satellite moving along a synchronous orbit at the equatorial plane has 24 hours as period of revolution and hence is stationary in respect of the earth's surface. American communication satellite "Early Bird" was launched into this orbit.

The variation of building up universal communication system by using three satellites launched into synchronous equatorial orbits has the lacuna that the geographical regions lying at a considerable distance from the equator are out of the communication system.

The Soviet communication satellites "Molniya-I" were launched not into the equatorial orbit, but into a highly elongated elliptical orbit with the period of revolution of approximately 12 hours. The maximum height of the orbit of these satellites is 400,000 km.

Nowadays it has been confirmed that a universal communication system as well as communication subsystem for different regions can be set up with the help of a few of such satellites. It should also be kept in view that launching of a satellite into an elliptical orbit requires a rocket carrier of approximately one-third capacity as compared to a rocket carrier for launching a satellite into the equatorial orbit.

As early as 1959 the US Government attached "national priority" to the work on setting up a commercial communication system with the help of satellites, and in 1961 proclaimed the setting up of satellite communication systems as one of the most important "national tasks" of the country.

In August, 1962, the American Congress adopted the bill on communication satellites which came into force on August 31, 1962 after the US President had signed it[26]. The Act provided for the setting up of a special private corporation "COMSAT" (Communications Satellite Corporation). In 1964, after the registration of "COMSAT" in accordance with commercial law of Columbia in Washington, this corporation started functioning. The "COMSAT" is headed by a 15-member Board of Directors.

Actual owner of the corporation is the largest American communication company ATT (American Telephone and Telegraph). Its capital is more than 25 milliard dollars. ATT own 85% of the telephone circuit of the USA. In terms of capital, this company may be compared with General Motors, General Electric or United States Steel Corporation.

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[26] *See Communication Satellites Act of 1962, "US Code", 76, Stat. 419.*

At the recommendation and approval of the Senate of the US Congress three directors are appointed by the US President for a term of three years; six directors are annually elected by the private communications companies which are the shareholders of COMSAT (practically by the American Telephone and Telegraph and its dependent organizations), six more directors are annually elected by other shareholders.

The COMSAT is authorized to issue shares. By the middle of 1964, 10 million shares of 20 dollars each have been sold. Out of them, 5 million shares i.e. 50% are in the hand of ATT and its dependent organizations[27]. Owners of the remaining 5 million shares are 13 thousand shareholders from different strata of US population. Thus, ATT has the full opportunity of directing and controlling the activities of the COMSAT. One of the first results of these activities was the rise in the price of shares of COMSAT from $ 20 to $ 60 - $ 70.

According to the Communications Satellite Act of 1962, the abovementioned private corporation is permitted "to plan, institute, set up, own, manage and operate, alone or jointly with foreign governments or business organizations, the commercial satellite communications system". The Act envisages that "USA will participate in the universal system through the private corporation".

Aside from this, the corporation was entrusted with wide power to conduct suitable negotiations with other countries. During the years 1963 and 1964 the COMSAT carried out preliminary negotiations with a number of countries on the question of setting up satellite communication system.

From June 21 to June 24, 1964 a conference on the question of setting up a commercial global communication system with the help of artificial satellites of the earth was held in Washington, in which participated the representatives from Canada, Federal

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[27] *ATT itself has purchased shares worth 58 million dollars.*

Republic of Germany, Japan, Italy, Norway, Spain, Sweden, Switzerland, the USA and the Vatican State.

The conference ended with the adoption of two agreements: one on the organizational principles of commercial satellite communication system and the other on commercial, financial and technical details connected with it. For a period of six months starting from August 19, 1964 these agreements were open for signature to the countries which are members of the International Telecommunication Union.

Both the agreements are temporary in nature. Up to January 1, 1969 all the countries signing them must decide their position whether permanancy should be accorded to these temporary agreements or whether it is necessary to establish a permanent international organization with a general conference and an international administrative and technical establishment[28].

The final agreement, which shall be operative from January 1, 1970, shall be formulated at the international conference to be convened by the US Government in 1969[29].

The agreement laying down temporary measures for global commercial satellite communication system says that the parties to the agreement will further select the type of satellites for the purpose of organizing the communication system in the second half of 1967[30]. Thus an international organization is being set up, which has still no necessary scientific and technical foundation.

It should be kept in view that such a system must comprise two basic components: the communication satellites along with their equipment, communication satellite launching devices, equipment for tracking them and correcting their orbits, and ground receiving and transmitting stations as well as relay apparatus.

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[28] *See "Agreement on Temporary Measures for Global Commercial Satellite Communications System", 1964, article IX, clause 'a', (further referred to as "Agreement on Temporary Measures ..... ").*

[29] *ibid., article IX, clause "c".*

[30] *ibid., article I, clause "a" (1).*

At present no one has any doubt about the fact that the ground stations must belong to the States on whose territories they are built. In fact, decisive role in the distant radio communication system to be organized by the US entrepreneurs will be played by those who will own the communication satellites serving the ground stations.

If one examines the Washington agreements from this angle, it becomes quite clear that the USA has fully retained in its hands the key positions in distant satellite radio communication system which is being set up by them jointly with other countries.

This system is being set up like an American joint-stock enterprise with foreign participation under full US control. Actual owner of the outer space sector of the system is the American Private Company COMSAT. Out of the 200 million dollars total capital of the international "consortium" under set up, 61% goes to COMSAT and the shares of all other participants of the global satellite communications system are:

Australia -- 2.75%, Austria -- 0.2%, Belgium — 1.1%, Great Britain - 8.4%, Holland -- 1%, Denmark-0.4%, Ireland - 0.35%, Spain - 1.1%, Italy - 2.2%, Canada - 3.75%, Norway - 0.4%, Portugal -0.4%, Federal Republic of Germany - 6.1%, France - 6.1%, Switzerland - 2%, Sweden - 0.7%, Japan - 2%, Vatican State - 0.05%.
Thus, 30.5% of the total capital belong to the countries of Western Europe, and 8.5% belong to Canada, Australia and Japan.

In order to conceal their monopoly position in this global commercial satellite communication system, the USA proceeded to set up an International Provisional Committee on Communication Satellites which bears full responsibility for the outer-space components of the system. The most important items to be decided by this committee, according to the agreement on temporary measures for the commerical satellite communication system, are:

1) Selection of the type or types of the outer-space components of the global satellite communication system;

2) setting up of general standards which allow the ground stations to find acess to the outer-space component;

3) approval of budgets on main categories;

4) correction of the statements of expenditure to be presented by the COMSAT;

5) fixation of tariff for the use of satellites;

6) decision on additional contributions over and above the estimated budget of 200 million American dollars, but not exceeding 300 million American dollars;

7) approval of the terms of contracts to be concluded by COMSAT for designing, working out and purchasing equipment for outer-space circuit;

8) approval of questions concerning launching of satellites, confirmation of satellites launching programs and allied operations as well as their launching sites;

9) approval of the governmental quotas of States which are members of the International Telecommunication Union or of State or private communication organizations appointed by them as the condition for their signing the Washington agreements;

10) defining the financial conditions for joining the Washington agreement on the part of a Government of any State which is a member of the International Telecommunication Union.

The Washington agreements are formally open for joining to all the States which are members of the International Telecommunication Union. In practice, the total share of the States joining these agreements must not exceed 17% of the total capital[31].

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[31] *See "Agreement on Temporary Measures ...", article XII, clause "c".*

The International Provisional Committee on Satellites comprises one representative from each participant in the agreement whose quota constitutes at least 1.5% and one representative from any two or more participants whose joint quotas constitute at least 1.5%.

Such a complicated system of representation ensures permanent seats in the Committee to nine States holding largest shares, namely, the USA, Great Britain, France, the Federal Republic of Germany, Canada, Australia, Italy, Japan and Switzerland. Other States participating in the "Consortium" are compelled to join together for nominating three representatives to the Committee.

The Committee has 100 votes and the right of each member to vote depends on its share in the total capital. For example, the USA has 61 votes and countries like Austria, Belgium, Denmark, Ireland, Holland, Portugal and Sweden are to join together in order to become entitled to vote in this "international body ".

Thus, the USA has succeeded in registering the so-called system of weighed voting in the international agreement. It should be kept in view that in the Western European interstate organizations on outer space (ELDO and ESRO) each participant State has one vote, which conforms to the confirmed international practice and the principles of international law.

The partners of the USA in the global Satellite communication system tried to institute a procedure of voting which would protect their interests in this system to some extent. However, their quite modest suggestion that the Committee decisions should not be made by the US votes alone, but also by the votes of 15 others, i.e., by the qualified majority of 2/3rds of votes, was declined by the USA.

According to the Washington agreements, the Committee should strive for unanimous decisions. However, in case it is not possible to reach an unanimous decision, the simple majority of votes shall be adequate. In certain cases qualified majority is required; this is made out of 61 US votes and 12.5 or 8.5

votes of other countries depending on the category of the problem under consideration[32]. Thus, in practice no decision on any problem can be taken without the consent of the USA.

The Washington agreements strengthen the position of the American company COMSAT in the sphere of international relations. Article VIII of the Agreement on Temporary Measures for Global Commercial Satellite Communication System states: "The communication Satellite Corporation, registered under Columbia law, hereinafter called "Corporation", functions in conformity with the general policy of the Committee and the concrete decisions which the Committee may take as the controller of design, formulation, construction, establishment, exploitation and maintanance of the outer-space components".

A special agreement enumerates in detail the functions of the COMSAT. According to article 12 of the special agreement, the COMSAT

1) prepares and presents before the Committee the annual programs and budgets;

2) recommends to the Committee the type or types of outer-space components which should be commissioned;

3) plans, conducts, organizes and collaborates in research, designs and formulation with a view to improving the outer-space components;

4) controls and maintains the outer-space component;

5) places before the Committee information sought for by any representative of the Committee so that he may discharge his duties;

6) promotes participation of the technical experts, appointed by the Committee with the consent of COMSAT from among the persons sponsored by the participants, for examining the designs and data of the equipment for the outer-space component;

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[32] *ibid., article IV.*

7) uses all avenues in order to provide that the invention, technical data and information flowing directly from any jointly financed work undertaken according to contracts entered upon prior to the day of opening the agreement for signature (August 19, 1964) are passed over to each participant and offered free of charge for design, formulation, production and exploitation of equipment and components for the outer-space part by each participant or any person who is under the jurisdiction of the participant or of the Government appointing this participant.

Each participant State in the agreement is obliged to pay its share of expenditure incurred by the COMSAT for design, formulation, construction and commission of the commercial satellite communication system. This expenditure covers: direct and indirect expenditure on design, formulation, construction and commission of outer-space part, incurred by COMSAT prior to the day when the agreement was opened for the first time for signature; all direct and indirect expenditure on design, formulation, construction and commission of outer-space part, incurred by the COMSAT or any other participant on behalf of the participants in the Washington agreements after the day when these agreements were opened for the first time for signature; all direct and indirect expenditure, incurred by the COMSAT, which can be accounted for the services rendered by the COMSAT as the controller of design, formulation, construction and commission of outer-space part as well as appropriate compensation to COMSAT for similar services, which must be agreed upon between the COMSAT and the Committee.

In October-November 1964, at the session of the UN Committee on outer space, the representatives of a number of delegations criticized the commercial satellite communications system set up on the basis of the Washington agreements of 1964. The Hungarian representative in his speech drew attention to the dangerous consequences of the provision which places outer space at the service of private interests of any agency which is interested only in making profit[33]. The Czechoslovak representative demanded adoption of measures which would exclude improper use of outer space communication on the part of any private firm[34].

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[33] *See "UN Monthly", 1964, No. 12, p. 43.*

In his report at the VII Colloquium on Space Law, held in Warsaw in September 1964, Soviet Jurist I. Cheprov expressed the opinion in support of strictest observance of provisions of the UN General Council resolutions 1721 (XVI) and 1962 (XVIII) while setting up global satellite communication system[35]. I. Cheprov criticized the American scheme of setting up commercial communication system in accordance with which the ground stations are in fact totally dependent on the activities and decisions of COMSAT.

According to the Washington agreements, the functions of taking decisions on construction of ground stations for using the global communication system vest in the International Committee controlled by the COMSAT. This agency is to examine the inquiries of the countries which will express the desire to utilize the system and to construct ground stations for this purpose. In this respect the Committee (actually the COMSAT) may at its own discretion permit or prohibit one or the other country to construct ground stations for connection with the system. It may recommend the use of ground stations situated in another country or neighboring geographical region. Under the pretext of "technical and economical considerations" or nonconformity with "technical requirements" the Committee may altogether refuse to offer "satellite capacity" (i.e., certain number of channels for communication); to restrict it to the station of any country inspite of the fact that huge resources have been spent on its installation.

Cheprov draws attention to the fact that the prospects of economically less developed countries are all the more gloomy in this respect[36]. These countries cannot count in the near future on the setting up of their own satellites, as well as the stations. And it would be naive to think that the American private companies will undertake similar construction without suitable State subsidies. Not a single country can rest assured that she may utilize the communication system any time without hindrances.

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[34] *ibid., p.46.*

[35] *See Cheprov, I., Kosmicheskaya svyaz' kak biznes (Outer Space Communications as Business), "Aviatsiya i kosmonavtika", 1965, No. 7, pp. 91-93.*

[36] *See Cheprov, I., Monopolii rvutsya v kosmos (Monopolies are entering Outer Space), "Mezhdunarodnaya zhizn'", 1963, No. 12, pp. 55-56.*

Another Soviet author G. Stashevskiĭ draws attention to the absence in Washington agreements of any guarantee against possible arbitrariness and discrimination on the part of the managing agency of this system — the International Provisional Committee. He emphatically points out that "the organizational structure of the system creates unlimited opportunities for discrimination in respect of countries subscribing to the satellite communication system"[37]. In this respect the commercial satellite communication system, set up by the USA, does not satisfy the requirements which were formulated in the UN General Assembly resolutions 1721 (XVI) and 1962 (XVIII) and which stipulate that outer space should be used to the benefit and in the interest of the entire mankind.

Thus, the facts obviously testify that the organization, set up by the USA for the management and exploitation of the global satellite communication system, is not actually an international system based on equal collaboration of States.

Further, the Washington agreements may become a distinctive obstacle on the path of further international collaboration in this field. For example, serious apprehensions are in the air that the private capital cannot ensure suitable technical level of the system; the fear of devaluation of the capital invested in usual means of communication may also become an obstacle for fast development and improvement of the system in keeping with the rise in requirements.

The Communication system, set up under the initiative of the USA, is being built up with a view to exploiting it mainly for telephonic conversation for the purpose of quick recovery of the invested capital and earning profit. A real international global communication system, however, should promote considerable extension of cultural and scientific intercourse among the countries through exchange of television programs, cultural, sports, social and other activities. Only in this case the use of satellites for global communication will serve the interests of all the countries and peoples.

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[37] *Stashevskiĭ, G.S., Sputniki svyazi i mezhdunarodnoe pravo (The Communication Satellites and International Law), "Sovetskoe gosudarstvo i pravo", 1964, No.12, p.62.*

At the same time, the possibility of using radio broadcast and telecast through the satellites for propagating war, enmity or hatred among nations should be avoided. Announcements of certain American politicians to the effect that "cold war" should be extended to outer space through satellite communications have created serious apprehension in this respect. In view of such statements, the Brazilian representative at the XVII session of the UN General Assembly raised the question of UN observation over the transmission of radio and television programs through the satellites. In the opinion of the Brazilian delegation, abuse of broadcast and transmission of radio and television programs on the world scale through the Satellites may create danger to the cause of peace and widen the gulf of misunderstanding among the peoples. The international system of distant radio communication through satellites is still in the initial stage; however, this system still undoubtedly become a reality by the end of sixties. In this connection, it should be kept in view that any activity in outer space, including activities in the field of exploitation of satellites for the purpose of radio communication, should be carried out in conformity with the principles and norms of international law.

Modern achievements in using the satellites for distant radio communication and television are opening great possibilities for international collaboration among States. They are making it possible to set up international system of distant radio communication through satellites and to conclude appropriate broad international agreement. Hence special importance attaches to the problem of formulation of legal principles of organization, control and operation of the international system of distant radio communication through satellites. In the final analysis, establishment of principles, in conformity with which should be built the relations among the parties to corresponding satellite communication system, depends on the States themselves. This, however, should not exclude the possibility of formulating de lege ferenda certain very general provisions.

The principle, that outer space is the universal property, has found universal recognition nowadays. When applied to the spectrum of radio frequencies for outer space service, this means that all countries have equal right to use this spectrum and none of them can usurp the right to deal with these frequencies individually. Hence, a real international system of distant radio communication through satellites should be set up on the basis of agreement among the interested countries with direct participation of official representatives of the States, and not of private corporations and firms. States alone should participate in such a system. Their mutual rights and obligations should be regulated exclusively by international law. Private communication companies may carry out some technical functions in the international system of distant radio communication through satellites on commission from and under the control of their respective governments. The responsibility for the activities of private companies in the sphere of international outer space communication rests with the State which has authorized them to carry out these activities. This follows from clause 5 of the Declaration of Legal Principles regulating the Activities of States in the Field of Exploration and uses of Outer space.

Access to such a system should be open for all the States of the world interested in establishing satellite communication. The instruction of the UN General Assembly to the effect that "the satellite communication should be accessible to all the States on an universal basis which excludes discrimination" [UN General Assembly resolution 1721 (XVI)] should be the guiding principle in this respect.

This principle should be formulated concretely in an international agreement on setting up of a system of distant radio communication and television through satellites.

Each State should have the right to make capital investment in this system with subsequent participation in its planning, elaboration, construction (including allotment of equipment), commissioning, operation and maintenance. Great importance attaches to an agreement on the number of trunk lines of a relay station of the satellite communication, distribution of communication channels among the participants, and organization of technical exploitation of the outer-space part of the system which covers the communication satellites, devices for tracking, controlling, guiding and related operations as well as equipment required for the functioning of communication satellites.

The contracting parties should define the limits of international collaboration in setting up the system of distant radio communication through satellites. This collaboration may be restricted only to the outer-space part of the system or extended even to the manufacture of ground apparatus and equipment for this system. It is desirable to have an agreement with respect to the most rational location of the network of ground stations of the international system of distant radio communication and television through satellites. The States may also come to an understanding on conducting scientific-explorative and experimental design works in the field of outer space communication according to an agreed plan.

Complicated scientific and technical problems have to be solved while working out and setting up the international system of distant radio communication through satellites.

It is necessary to solve problems like the optimum selection of the systems of communication satellites and their orbits; elimination of mutual intereference at the time of simultaneous use of the radio frequency band; working out devices and apparatus which reduce the effect of undesirable Doppler distortion of the frequency of time signals and the effects of echo-signals; selection of the optimum methods of modulation and working out the apparatus ensuring simultaneous operation of a large number of ground stations through one or several communication satellites; direct reception of the signals of radio broadcast and television, relayed through earth's satellite by the popular types of receiving sets normally used by the population; selection of the optimum systems and working out the apparatus for telemetry, guiding and tracking the communication satellites. The International Telecommunication Union and its permanent agencies can play a great role in solving these problems.

The participants of the system should come to an understanding on the burden of expenditure for the establishment and operation of the system. The contribution of each participant can be made by way of carrying out certain activities as well as in cash. The contribution by way of activities means: special scientific-explorative and experimental design works, construction of communication satellites and their launching, and also further maintenance of a required number of functioning communication satellites. The question of property right over the communication satellites has also to be decided by an agreement among the parties. The international legal regulation defining the corresponding advantages of the partners of the system should cover the following problems: distribution of channels, distribution of time for the use of a particular type of communication, and also fixation of tariffs for additional use of the channels over and above the established norms.

The establishment of an international system of distant radio communication through satellites also requires solution of legal problems involving the activities of the ground stations.

The legal regime of these stations should harmonically combine the sovereign rights of the State on whose territory they are located with the requirements of the satellite communication system. In this connection, it is necessary to distinguish between the ground tracking and guiding stations of the satellite communication system and the ground receiving and transmitting stations. The former serves the communication satellites and assists in their correct functioning. The latter are served by the communication satellites.

An agreement among the States on the international system of distant radio communication may incorporate the general principles regulating the activities of the ground stations. These principles may find in future concrete shapes in special agreements to be concluded among the interested countries.

The organization of management and operation of an international system of distant radio communication through satellites should be based on the principle of equal collaboration of all States without any discrimination. Such collaboration may assume various forms; a special agency can be instituted, which would periodically meet to solve the problems connected with the use of the international system of distant radio communication and television through satellites. Such an agency would coordinate the activities of the participants in the system on construction and launching of communication satellites, on maintaining the satellites in working condition, on substituting satellites which are out of order, on servicing communication satellites through tracking and guiding stations.

The States may also consider it advisable to institute a permanent international organization on communication satellites having general conference and international administrative and technical establishment. Such an organization would fulfil the function of the operator of the international system of distant radio communication and television through satellites.

The system of distant radio communication through satellites, established by the Washington agreements of 1964, cannot be, as mentioned earlier, accepted as the model. The legal principles on which this system has been based, have been subjected to just criticism by the representatives of a number of countries. A perusal of these agreements shows that their most important provisions run counter to the UN General Assembly resolutions, the Declaration of Legal Principles regulating the Activities of States in Outer Space, as well as the resolution of the International Telecommunication Union on the questions of regulating the activities connected with the use of satellites. It is not accidental that the Washington system of distant radio communication through satellites was set up by bypassing the UNO and the International Telecommunication Union. The United Nations Organization is the center of International collaboration in the explorations of outer space.

The UN General Assembly in its resolutions points out that the exploration and uses of outer space should be directed only to the welfare of mankind and to the benefit of all States, irrespective of the stage of their economic or scientific development.

The International Telecommunication Union has great possibilities for the examination of numerous technical and organizational problems connected with planning and operation of the international system of distant radio communication through satellites. The participation of UNESCO in working out programs of television through satellites may be very helpful.

The necessity of establishing very close contacts and collaboration with a number of other international organizations may arise in the course of practical activities of the international system of distant radio communication through satellites.

Scientific, technical and economic considerations speak in favor of establishing a single international system of distant radio communication through satellites. One system will, undoubtedly, ensure better use of the radio frequencies allocated in the line of International Telecommunication Union, and also promote most economic and effective use of the entire radio frequency band. After the unification of countries of all the continents, it will be possible to eliminate the interferences which may arise as the result of activities of outer space systems competing with one another and to avoid mutual difficulties which occur in the course of work of outer space systems and other technical services. Single system will also promote improvement and development of the outer-space and ground means of communications of all the countries with the most economical use of resources.

The preamble to the Washington intergovernmental agreement of 1964 mentions about the desirability of setting up one global commercial satellite communication system. In fact, however, conclusion of this agreement has created serious obstacles in the path of organization of one communication system. Hence, the possibility of emergence in the coming years of other international systems, in particular, an international system of distant radio communications and television of socialist countries, is not excluded. It is well-known that the Conference among the socialist countries, held in Moscow during November 15-20, 1965, discussed, inter alia, this problem also[38].

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[38] *See Pravda, November 24, 1965.*

It is also well known that the leading countries of Western Europe are trying to set up satellite telecommunication system. Moreover, in the USA itself organizational works are under way for setting up another global satellite telecommunication system comprising 24-30 satellites, each 50 kg in weight, to meet the requirements of the Department of Defense. Such satellites are earmarked to be launched into orbit at the height of 800-900 km with the help of the rocket "Titan-3", which is capable of launching seven satellites at a time.

Agreement between a certain group of States with regard to setting up of an international satellite telecommunication system should conform to the general principles and norms of international law, which regulate the activities of the States in the field of exploration and uses of outer space. If this condition is fulfilled, then there is no need of resorting to appropriate international consultations as envisaged in clause 6 of the Declaration of Legal Principles regulating the Activities of States in the Field of Exploration and Uses of Outer space.

It is quite natural that the existence of several international satellite telecommunication systems creates the necessity of coordinating their activities with a view to avoiding mutual interferences which are involved in distribution and use of the radio frequencies.

At present it is difficult to foresee what form of coordination of the activities of different systems will be most expedient and acceptable to the interested States. Such coordination is possible: a) directly among different satellite communication systems; b) through the International Telecommunication Union and c) through setting up a special agency for this purpose on the parity basis.

Use of satellites for the transmission of telegraphic communication and telephonic conversations does not create any new legal problem as compared to the problems of using conventional means of communications (cable, radio). The picture becomes altogether different when radio and television programs are transmitted through a satellite. Such transmissions are undertaken at present for experimental purposes possibility of direct reception, on the part of the people, of radio and television transmissions relayed through the satellites is not excluded. This requires launching of such a communication satellite into the orbit, which has on board a transmitter of several kilowatt capacity. But such increase in the capacity of transmitters on board the communication satellites may cause such overloading of the ether that normal operation of all purpose radio receiving sets will become impossible. Hence, the international organizations are discussing the question of establishing a maximum permissible norm of energy density which is created by the transmitter of the communication satellites on the earth surface. In particular, there is a suggestion to restrict the capacity of transmitters on board the communication satellites to 40-80 watts.

In view of the possibility, in course of further scientific and technical progress, of receiving signals from a communication satellite by broadcasting radio receiving sets and televisions, the Extraordinary Administrative Conference of the ITU in 1963 incorporated in the concluding documents the definition 84 AP, which says: "Radio broadcasting service using satellites is an outer-space service in which signals transmitted or relayed by the outer space stations, or transmitted through reverberation from the objects in the orbit around the earth, are intended for direct reception by the people"[39].

The Washington agreements of 1964 silently avoid the question of government control over radio and television transmissions through satellites which are intended for direct reception by the people.

The government control over radio and television transmissions through satellites should be exercised by the country within the jurisdiction of which is located the transmitting ground station. Certain control can be exercised by the authorities of the country on whose territory is located the receiving ground station.

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[39] *"Zaklyuchitel'nye akty ChAKR", 1963, p.9.*

The problem of control, however, becomes considerably complicated when radio and television programs meant for direct reception by the people are transmitted through a satellite.

A State has the right to protest against the programs which damage friendly relations among nations. It is also not excluded that the private companies in some countries will try to transmit programs, amoral in nature, through the satellites in order to avoid the government control. In similar circumstances the State will be compelled to adopt measures for suppressing such programs. And this may create harmful interferences for the radio services of the neighboring countries, not to speak of the irrational use of radio frequencies.

The Declaration of Legal Principles regulating the Activities of States in the Field of Exploration and Uses of Outer Space, adopted by the General Assembly of the United Nations Organization on December 13, 1963, refers to the UN General Assembly resolution 110 (11) of November 3, 1947, which condemns propaganda aimed at or capable of creating or intensifying the threat to peace, violation of peace or acts of aggression. It would be advisable to give concrete shape to this general provision in respect of activities of the service of outer-space radio communication and to lay down in the form of a document having the legal force of an international treaty.

In particular, with a view to averting the possibility of using outer-space radio communication for hostile propaganda it would be desirable:

1. To incorporate a resolution about the use of this new means of communication among the peoples for welfare of the mankind and for strengthening friendship and mutual understanding in the whole world in the appropriate section of the agreement among the States, which is the basis of the setting up of the international system of distant radio communication through satellites. Even a negative formulation is possible, which would mention the inadmissibility of transmission or relay by outer space stations of programs which propagate war, national and racial hatred, as well as emity among the peoples.

2. To establish, if the States consider this necessary, a special agency for observing the implementation of this resolution within the framework of the international system of distant radio communication through satellites.

3. To adopt a special convention about the use of the international systems of distant radio communication through satellites in the interest of humanity, peace and friendship among the peoples. It would be desirable to solve in this convention the question of transmission of unified global programs and their simultaneous translation in various languages. Experience of the UNESCO is of great importance in working out such programs. It would be possible to create within its framework a special committee to deal this question. The convention should envisage also the responsibility of the States for the violation of its provisions.

It is well-known that the installation of pirate radio stations on board the ships beyond the territorial waters required introduction of a special paragraph in article 7 of the Regulations of Radio Communications of 1959. This article prohibits "installation and use of radio stations (sound and television transmission) on board the ships and aircraft or objects floating or flying beyond the national territory"[40].

Sometimes opinion is expressed about the advisability of extending the operation of this provision of the Regulations of Radio Communications to the outer-space stations. We think that it would be better to incorporate in the convention a provision analogous to article 7 of the Regulations of Radio communications, but specially keeping in view the space stations.

While raising the question of adopting a convention on the use of international systems of distant radio communication through satellites in the interest of humanity, peace and friendship among the peoples, the Convention on the question of using radio broadcasting in the interest of peace, which was adopted on September 23, 1936 in Geneva, can be cited as a precedent worthy of attention.

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[40] *"Reglament radiosvyazi", Svyazizdat, 1961, p. 115.*

This Convention confirms the right of each State to prohibit and stop without delay all radio broadcasts, which: 1) may incite citizens of a given territory to commit acts which are prejudicial to the internal order and security; 2) contain inaccurate assertions capable of damaging the good relations among States (articles 1 and 3). At the same time, these articles impose the responsibility on the States to see that their radio stations do not incite war against any of the contracting States or acts which may cause war (article 2); that radio broadcast containing Statements which are inaccurate and may damage good relations are refuted (article 3); that there is exchange of information which is helpful for the cause of organizing peace (articles 4 and 5).

It is evident from the above mentioned articles that the States have the obligation to adopt measures for prohibiting and stopping transmissions prejudicial to the cause of peace, as well as positive measures aimed at promoting mutual acquaintanceship among the States. Article 6 of the Convention binds the States to instruct in a suitable manner their radio stations to fulfil the obligations mentioned in the foregoing articles. Article 7 stipulates arbitration for all disputes arising out of the interpretation and implementation of the Convention. The concluding articles (articles 9 - 15) speak about the ratification of the Convention, joining it, its coming into force, withdrawal from it and its review[41].

The USSR took part in the formulation of the Convention of 1936. However, the situation before the World War II was not conducive to its implementation. Formally the Convention came into operation from April 2, 1938.

It is necessary to point out that in the course of discussion over the draft convention the Belgian delegation announced that the right of a State to suppress with its own devices malicious broadcasting coming from another country was not refuted by the

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41. See Krylov, S.B., Mezhdunarodnopravovoe regulirovanie radiosvyazi i radioveshchaniya (Regulation of Radio Communications and Broadcasting according to International Law), Svyaz'izdat, 1950, pp. 299-300.

convention inasmuch as this right existed in accordance with the general norms of international law in existing Conventions[42].

Means of communications located beyond the territory of a State need protection of international law. Protection envisaged in international law for telegraphic cables at the sea bed can be cited as an example.

We shall recall that the first telephone cable at the sea bed was laid between Dover and Calleigh in 1851, and the laying of Atlantic cable, linking Europe with America, began in 1866. Cables are laid at the bottom of the ocean and precautionary measures are adopted in order to avoid damage to the cable in such places where depth is not much. The necessity of international legal protection to submarine cables, however, became quite evident very soon. With this aim in view, on March 14, 1884, in Paris, 26 States signed the International Convention on the Protection of Submarine Telegraphic Cables[43].

The main provisions of the Convention of 1884 stipulate that the right to lay and maintain submarine cables in the proper conditions enjoys general protection from the States signing the Convention, which undertake the obligation to enact necessary laws in order to ensure implementation of the provisions of the Convention and impose punishment for their violation. Destruction of or damage to submarine cables, caused through deliberate act or criminal negligence, is punishable, regardless of civil suit for compensating losses, except those cases when damage to the cables was necessitated by reason of self preservation. In course of the discussion in Paris the concept "criminal negligence" was defined as nonobservance of elementary precaution and usual rules of navigation (article 2). Protective devices, suggested by the Convention, relate to the ship which is authorized to lay the cables or repair them. All ships should refrain from interference in the matter of laying the cables or repairing them and should keep at least a mile away from the ship engaged in laying or repairing the cable.

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[42] *ibid., p.301.*

[43] *This Convention was accepted on behalf of the Soviet Union by the Decree of the SNK SSSR (Council of peoples' Commissars of the USSR) dated February 21, 1926 (See "Mezhdunarodnye Konventsii i soglasheniya, otnosyashchiesya k torgovomu moreplavaniyu [International Conventions and Agreements on Mercantile Navigation], Izd-vo "Morskoĭ transport", 1951, pp.9-13.*

According to article 7, the shipowners, who with a view to preventing the damage of the submarine cable, have proved that they have lost anchor, net or some other fishing equipment, are entitled to get reward from the owner of the cable.

Naval fleet of the States, which have signed the Convention, have the rights to stop and check the national affiliation of all merchant ships which are suspected of infringing the provisions of the Convention (article 10), but the Courts of the State, whose flag the guilty ship flies, are the exclusive judicial organs competent to establish the fact of infringement of the provisions of the Convention (article 8).

The Convention, however, is in force only during peace time. Article 15 of this Convention stipulates that its provision "by no means restrict the freedom of action of the warring countries".

In view of the prospects of establishment of international systems of distant radio communications through satellites, it is natural to raise the question about the protection of outer-space and ground parts of this system by international law.

International Telecommunication Convention of 1959 envisaged in article 47 that "all stations, regardless of their purpose should be established and operated in such a manner that they do not create harmful interferences to radio communication or radio services of other members or co-members, recognized private operational organizations or other operational organizations who have corresponding rights in ensuring the service of radio communications and operate in conformity with the provisions of the Regulations of radio communications" (clause I).

In accordance with article 47, each member or co-member of the International Telecommunication Union undertakes the obligation to demand observance of the provisions relating to avoiding harmful interferences from the private operational organizations recognized by it or other operational organizations allowed to function. Besides, the members and co-members of the ITU consider it desirable to adopt all practically possible measures so that the operation of electrical apparatus and various electrical installations do not create harmful interferences to the radio communication or radio services.

This provision of the International Telecommunication Convention is inadequate for ensuring reliable protection of the communication satellites. It does not touch such questions as destroying the apparatus on board the communication satellites or puting it out of action.

In order to provide protection in International law to the system of distant radio communication through satellites, which is being used in accordance with the Declaration of Legal Principles regulating the Activities of States in the Field of Exploration and Uses of Outer Space, the following measures are possible:

1. Inclusion in the agreement on setting up of an international system of distant radio communications of provisions for avoiding harmful interferences from other radio communication services, including provision for stopping transmission by space stations after they have carried out the tasks set before them.

2. Conclusion of a special international convention on the protection of communication satellites, which would impose on the States the obligation of refraining from any act which may put out of action the apparatus on board a communication satellite or destroy it. Jurisdiction of the convention can be extended to meteorological and navigational satellites, which are being used in accordance with the Declaration of Legal Principles regulating the Activities of States in the Field of Exploration and Uses of Outer Space [resolution of the UN General Assembly 1962 (XVIII)].

3. International legal regulation ot measures for the protection of ground stations against harmful interferences from neighboring radio relay lines, industrial undertakings, ships, aircraft and outer space objects.

Ground stations should be located in the calm belt at a distance of approximately 80 km from the industrial centers creating harmful interferences. Installation of radio stations should be banned within this area, and flying aircraft should switch off their radio apparatus within this area. Ground stations of an international system of distant radio communication should be provided with legal protection against harmful radio interferences like the protection given to astronomical observatories.

Formulation of effective legal means for preventing impermissible switching on of some receiving and transmitting station to an international system of distant radio communication through satellites, to which it does not belong, is of great importance.

Thus, international legal regulation of the use of communication satellites should prevent their use which creates harm to other outer space services and at the same time should create favorable conditions for proper functioning of the entire system of satellite communication on the whole.

CHAPTER VIII

LEGAL STATUS OF CELESTIAL BODIES

Till now the flights of spaceships with crew aboard have been confined to the part of the earth's atmosphere, called thermosphere. Orbits of Soviet and American spaceships pass at a height not exceeding 1500 kilometers, i.e., not at a very great depth of outer space surrounding the earth. Future flights in outer space will be more prolonged and further away from our planet.

With the flight of the Soviet spaceship carrying man on board, mankind entered the era of space flights. Interplanetary flights of automatic apparatus for delivering scientific instruments on other celestial bodies, and later on, flights of people to the planets of the Solar system - such is the next important stage in the conquest of outer space.

The moon, the celestial body nearest to us, will become the first station on way to so called distant outer space. Great success in its exploration was achieved in 1966. The Soviet automatic station "Luna-9" made a soft landing on the surface of our natural satellite, and Soviet automatic stations "Luna-10" and "Luna-11" were launched into an orbit near the moon. The American space apparatus "Surveyor-1" also made a soft landing on the moon. The automatic stations sent to the moon will in future enable us to investigate the composition of the lunar soils, to penetrate into the mysteries of the interior of the moon, to obtain other valuable information about her natural conditions.

This information is very important for the engineers who will design the scientific stations, observatories and settlements on the moon.

The moon, the natural satellite of the earth, lies at a distance of approximately 384,000 Kilometers from us. At the perfect level of development of the space technology the to-and-fro journey between the earth and the moon will take nearly a week. American scientists expect this event to take place before 1970. Any how, the flight to the moon is task of the near future. In this context, the question arises: Can man live on the moon ? Conditions there differ very little from the conditions in outer space. The moon has practically no atmosphere. The density of gas on the surface of the moon is 10,000 times less than that on the surface of the earth. The temperature conditions on the moon is also peculiar. The surface temperature rises to + 130°C at the places where the sun shines at the zenith, and it drops nearly to - 150°C or even less during the two-week lunar night. The scientists think that a constant negative temperature, nearly - 30°C, continues at the depth of several decameters. Further it rises, and evidently there is a high temperature region at the depth.

Till recently the moon was considered a dead, cold celestial body.

However, the Soviet astronomist N. Kozyrev has observed phenomena very similar to the volcanic activity, and it appeared that these observations were not isolated. In view of the unfavorable natural conditions on the moon man will need special protection against space radiation, meteorites, scorching sun rays and cold outer space night. Besides, in order to exist on the moon man must be provided with suitable gas medium, food, water and many other articles which are essential for living.

For movement on the surface of the moon a cosmonaut will require a pressurized suit. Aside from this, the pressurized space suit will give necessary protection against temperature. Unlike outer space, there is no weightlessness on the moon. However, the objects as well as man will be weighing six times less than on the earth. It is evident that this condition also may affect the state of human organism to some extent.

Man dreams of flights to other worlds. And this dream is quite real. The scientists are solving numerous problems which are connected with the flights to distant stars and return to the earth. The time will come when the spaceship carrying crew on board will reach the moon and the first scientific expedition will start on her surface. Mars, Venus and Jupiter will be on the waiting list.

It should be kept in view that the moon, a natural satellite of the earth, may possibly become a convenient cosmodrome for launching huge spaceships to Mars, Venus, Jupiter and other planets of the solar system. In order to overcome lunar gravitational pull the spaceships will have to develop a speed of 2.4 kilometers per second. A speed of 11.2 kilometers per second is necessary for overcoming the earth's gravitational pull. Exploration and uses of the moon and other celestial bodies create a number of legal problems. Further scientific and technical progress in the conquest of distant outer space will considerably depend on their solution.

The international documents laying the foundation of the legal regime of the moon and other celestial bodies are : Declaration of Legal Principles regulating the Activities of States in the Field of Exploration and Uses of Outer Space of December 13, 1963; Treaty signed on August 5, 1963 on Banning Tests of Nuclear Weapons in the Atmosphere, Outer Space and Under Water and the understanding between the USSR and the USA that objects carrying nuclear weapons should not be launched into outer space, which was approved by the UN General Assembly resolution 1884 (XVIII) on October 17, 1963. These are however the preliminary steps towards international legal regulation of the activities of the States in the field of exploration and uses of the moon and other celestial bodies.

The necessity has already been created for the formulation of international legal norms in accordance with which the States would take practical measures in the field of conquest of the moon and other celestial bodies.

The proposal of the Soviet Union for the conclusion of an international agreement on legal principles of the activities of the States in the field or exploration and conquest of the moon and other celestial bodies had great significance in this respect[I]. The Soviet Union proposed to base such an agreement on the following principles:

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[1] *Letter of Gromyko, A.A., Minister of Foreign Affairs, USSR, to U. Thant, the Secretary General of the UNO (See Pravda, June 1, 1966).*

1. The moon and other celestial bodies are open for exploration and uses by all the States without any discrimination. All the States enjoy the freedom of scientific exploration of the moon and other celestial bodies on the basis of equality and in accordance with the basic principles of international law.

2. The moon and other celestial bodies should be used by all the States exclusively for peaceful purposes. No military base or installation, including installation of nuclear and other weapons of mass destruction of any kind, should be set up on the moon or other celestial bodies.

3. The moon and other celestial bodies are explored and used for the welfare and interest of the entire mankind. They can not be the object of appropriation or any territorial claim:

4. In the exploration of the moon and other celestial bodies the States are guided by the principles of collaboration and mutual assistance and carry out their activities with due consideration for the interests of other States with a view to upholding international peace and security.

An agreement on the basis of such principles would create the conditions for peaceful exploration and uses of the moon, avert the possibility of turning this sphere of activities of mankind into a source of international disputes, and create favorable conditions for subsequent concretization of international legal aspects of the activities of the States for conquesting other celestial bodies.

These principles with some clarification were incorporated in the draft treaty ''On the Principles of Activities of the States in the Field of Exploration of the Outer Space of the Moon and other Celestial Bodies'' which was introduced on June 16,1966 by the USSR for discussion at the XXI Session of the UN General Assembly. The Soviet draft treaty was the natural continuation of the efforts made by the Soviet Union over several years for the purpose of establishing a strict legal regime in outer space.

It is well-known that the UN General Assembly in 1963 and 1965 referred to the necessity of concluding such an agreement. It had in view that such an agreement would further develop the legal principles which have already been formulated in the UN General Assembly resolution 1962 (XVIII) dated December 13, 1963 and in other international documents regulating the activities of the States in the field of exploration of outer space and celestial bodies.

It is well-known that even the US President L. Johnson spoke in favor of concluding a treaty on moon and other celestial bodies. A corresponding draft treaty was submitted by the USA for consideration at the XXI session of the UN General Assembly. All the aforesaid international documents mention a celestial bodies, but the concept of celestial bodies has not been clarified. At the same time, various opinions on this score are being expressed in legal literature. All jurists agree on the point that celestial bodies should be distinguished from the artificial space objects, namely, spaceships, stations, apparatus, laboratories, satellites, carrier rockets and other space flying apparatus which belong to the States registering them in accordance with the Declaration of Legal Principles (clause 7). So far as natural celestial bodies are concerned, their classification is quite difficult. Majority of such bodies in outer space are micrometeorites of the size of several thousandth part of a millimeter. The next category refers to meteorites of 2 to 20 meters in diameter. The asteroids form the third category of natural celestial bodies. Thousands of small planets, from 30 meters to 30 kilometers and more in diameter, are called asteroids. The biggest among them have even personal names. The asteroids revolve around the sun along the orbits lying between the orbits of Mars and Jupiter. Some asteroids, on maximum approximation to the sun, move between Mars and the earth. The fourth category of natural celestial bodies refers to comets which are usually very small particles of matter, sometimes surrounded by gas medium. Lastly, the planets and their natural satellites form the fifth category. Phobos and Deymos, the satellites of Mars, are celestial bodies small in size. The diameter of Phobos is 16 kilometers and of Deymos - 8 kilometers.

Thus the question arises : Do the jurists and astronomists agree on the concept of celestial bodies ? The international documents are silent about the definition of a celestial body. However, it becomes clear from these documents that celestial bodies are understood to be natural outer space bodies of a certain size having hard surface.

No doubt that celestial bodies are first of all planets and their natural satellites. More complicated, however, is the question whether the Declaration of Legal Principles has in view other categories of natural celestial bodies in the physical sense, when it mentions that they are open for exploration and uses and not subject to national appropriation. We think that the principles of space law should equally apply to all celestial bodies useful for conquest and uses. So far as the micrometeorites, small meteorites and comets are concerned, from the viewpoint of international legal regulation there is strong reason for considering that the legal principles formulated in the UN General Assembly resolution 1962 (XVIII) and UN General Assembly resolution 1884 (XVIII) apply in equal measure to outer space as well as to celestial bodies. The conclusion drawn by the Polish jurist J. Machowski that ''the introduction of some distinctions, quite justified from the viewpoint of astronomy, among celestial bodies like stars, suns, planets, satellites, planetoids, asteroids, comets, meteorites etc, seems to be unnecessary and unjustified from the viewpoint of jurisprudence''[2] appears to us as perfectly correct. The Bulgarian jurist M. Markoff maintains the same opinion. He thinks that the Declaration of Legal Principles applies equally to small celestial bodies[3] also. Markoff draws attention to impermissibility of appropriating celestial bodies by terminating their existence or separating them from the natural surrounding with a view to using them for a specific purpose. He suggests the following definition of the concept of "celestial body" in the legal sense : The term '' celestial body'' means any natural space object useful for the conquest by man and uses of which can be controlled by scientific and technical devices.

A number of jurists hold a different opinion on this question Austrian jurist E. Fazan considers that "the meteorites cannot be treated as celestial bodies lying outside the scope of appropriation in the sense as mentioned in the resolution of the UN General Assembly"[4]. In his opinion, no one calls and can call in question some body's right to capture meteorites in outer space and to bring them to the earth. E. Fazan proceeds from the premise that even larger celestial bodies can be appropriated. He justifies his stand on this question in the following manner: "Use of outer space is free. Hence any" fragment in outer space" which can actually be used and taken under control, can be appropriated in our opinion. But not a single object in outer space can be taken under control and used in toto, if it cannot be directed and moved through outer space. Even a block, one kilometer in diameter, can be appropriated, if the country or the State concerned is capable of moving it in any direction through mechanical devices, i.e., rockets, etc."[5]

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[2] *Machowski, J., Paragrafy dla kosmosu. Panstwowe Wydawnictwo Naukowe, Warszawa, 1965, Str. 109.*

[3] *See Markoff, M.G., Problems juridiques de l'exploration planetaire, Sofia, 1965, p. 5.*

This viewpoint found support from the Working Group of the International Institute of Space Law, which has been studying the legal status of celestial bodies for a number of years.

It should be kept in view that the criterion of appropriation of celestial bodies, put forward by E. Fazan, cannot be considered stable in view of the development of scientific and technological progress. If an asteroid cannot be moved today with the help of rocket, it is not impossible in future. According to the communications of the foreign press, scientists are working on the projects for future use of small celestial bodies for interplanetary flights.

It is not out of place in this context to refer to the relevant comment of the American scientist D. Koul who works in the department of rockets and spaceships of the company "General Electric". In his speech at the annual meeting of the American Astronautical Society on January 18, 1962, he expressed the opinion about the possibility of changing the course of an asteroid

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4. *Fazan, E., K voprosu o pravovom rezhime nebesnykh tel (On Legal Regime of Celestial Bodies); "Sovremennye problemy kosmicheskogo prava", IL. 1963, p.299.*

5. *ibid., p.300.*

moving between Mars and the earth so that it collides against the earth with a force which is equal to the force of explosion of millions of hydrogen bombs. Koul said that "the strength of space missiles of seventies must be sufficient to dislodge from the orbit an asteroid coming close to the earth and to cause its crash at a given region on the globe". According to this scientist, to dislodge an asteroid from the orbit will not be any more difficult than setting up a base on the moon. The crew of the rocket will create charge chamber on an asteroid with the help of small nuclear bombs. Then, in order to send the asteroid to the required direction, the cosmonauts will explode in the chamber hydrogen bombs having approximately 300 megaton total capacity. One asteroid bomb, if it falls on Kentucky, will put out of order the entire eastern half of the United States, including all the populated regions from Boston to Miami, from Dulut to New Orleans and from Washington to Omakhi. It is quite possible that the earthquake in the wake of explosion of such intensity will destroy the buildings on the entire North American Continent. If such an asteroid will be directed to the Atlantic Ocean, tidal waves will cause destruction not only on the Atlantic coast of the United States, but also in a considerable part of the Western Europe.

It is quite natural that such dark prospects of appropriation of celestial bodies have nothing in common with the provision of the Declaration of Legal Principles, which mentions that celestial bodies are open for exploration by all the States. Such actions are fraught with serious consequences for the entire population of our planet.

In view of what has been said we think that it is undesirable to restrict the sphere of action of the principles of space law to a certain category of celestial bodies. Moreover, the legal regime of celestial bodies, in our opinion, should not be set off against the legal regime of outer space. At any rate, the way the question is formulated is justified at the present level of our knowledge about the Universe.

While studying the problem of legal regime of celestial bodies, many exponents of the doctrine of space law in the West were inclined in the beginning to compare celestial bodies with the islands in an open sea. Acknowledging outer space to be common property, they considered celestial bodies as objects not belonging to any one, which the States can capture. Later on, the majority of aforesaid exponents however, renounced such analogy with an open sea. Nevertheless, some authors show a tendency to set off the legal regime of celestial bodies against the legal regime of outer space. On the basis of such set off conclusions are drawn which do not agree with the provisions of international documents defining the legal regime of outer space and celestial bodies. For example, sometimes it is assumed that the Treaty on banning tests of nuclear weapon in the atmosphere, outer space and underwater does not apply to celestial bodies. Such a conclusion is drawn on the plea that this treaty speaks about the ban on tests of nuclear weapons in outer space and speaks nothing about celestial bodies.

It is a fact that celestial bodies are not mentioned in the text of the Moscow Treaty. It, however, does not follow from this that the moon and celestial bodies can be converted into testing sites for nuclear weapons. Moreover, practically it is difficult to do so, since the UN General Assembly resolution 1884 (XVIII) dated October 17, 1963 bans the placement of objects carrying nuclear weapons in outer space, and in particular, the installation of such weapon on celestial bodies.

Thus, this single example may convince one that the legal regime of celestial bodies is inseparable from the legal regime of outer space and any attempt to set them off against one an other in this respect is totally unjustified. Moreover, if one adopts such a stand, this may lead to extremely erroneous interpretation of other international documents on space law, and in particular, considerably restrict the sphere of action of the Declaration of Legal Principles regulating the Activities of States in the field of Exploration and uses of Outer Space.

First of all, the very title of this Declaration does not mention celestial bodies. Can any conclusion be drawn on this ground that the legal principles formulated in the Declaration are not applicable to celestial bodies ? The Declaration itself gives a negative reply to this question. Clauses 2 and 3 of this Declaration state about outer space and celestial bodies. Thereby the sphere of action of the Declaration of Legal Principles extends to celestial bodies also.

It is true that other clauses of this Declaration speak only about outer space. But it is sufficient to refer to the text of these clauses in order to be convinced about the fact that they refer in the same way to celestial bodies. For example, clause I of the Declaration reads : "Outer space is explored and used for the welfare and in the interest of the entire mankind". Though celestial bodies are not mentioned in this clause, it is quite evident that they are also kept in view along with outer space.

From what has been said it does not follow at all that the activities of a State in the field of exploration and uses of celestial bodies has no specific nature. Such specific nature exists; moreover, it should be taken into consideration while adopting suitable international legal regulation. Besides, such specific nature will undoubtedly be characteristic of each celestial body taken separately. In this case we have in view the necessity of concretization and development of basic principles of space law in keeping with the peculiarities of the activities of States in conquesting the moon or some other celestial body.

According to the Declaration of Legal Principles of December 13, 1963, the moon and other celestial bodies "are open for exploration and uses by all the States on the basis of equality and in accordance with international law (clause 2 of the Declaration). Accordingly, the activities of the States in respect of celestial bodies as well as in outer space should be carried out "for the welfare and in the interest of the entire mankind" (clause I of the Declaration).

Also the question has been raised in literature whether the moon could be converted into a dumping ground for the radioactive waste products, if it was found unsuitable for the settlement of people from the earth. Implementation of this proposal would lead to the radioactive contamination of the moon which would eliminate the possibility of its further uses for other purposes. It is quite understandable that not such actions were contemplated when it was stated that celestial bodies were open for exploration and uses to all the States for the welfare and interest of the entire mankind. By using a celestial body a State should not threaten the territorial integrity and political independence of other States and also cause damage to their legal interests. Activities of the States in the field of exploration and uses of outer space should be conducted in accordance with international law including the Charter of the United Nations Organizations in the interest of international peace and security and also development of international collaboration and mutual understanding. According to the existing international documents mentioned earlier, the moon and other celestial bodies cannot be used as the testing sites of nuclear weapons. But American scientist I. Singer proposed to conduct such tests on the moon at the VII Congress of the International Astronomical Federation in 1957[6]. Six years later, famous American atomic scientist E. Teller described his plans to conduct a whole series of nuclear explosions on the moon at a scientific seminar in the Space Research Laboratory of the California University in the USA.[7] After the signing of the Treaty on banning the tests of nuclear weapons in the atmosphere, outer space and under water, conducting such experiments on the celestial bodies is impermissible[8]. Moreover, the UN General Assembly in resolution 1884 (XVIII) dated October 17, 1963 appealed to the States to refrain from installing on celestial bodies the objects carrying nuclear weapon. Thus, test of nuclear weapon as well as its installation on the moon and other celestial bodies is prohibited.

It is necessary, however, to go still ahead and ban all uses of the moon and other celestial bodies for military purposes. The Soviet Union is striving for the conclusion of an agreement on universal and total disarmament as well as for the restriction of armament race. In conformity with this, the Soviet Union demands ban on using the moon and other celestial bodies for military purposes. The Soviet draft treaty "On the Principles of the Activities of the States in the Exploration of Outer Space of the Moon and other Celestial Bodies" of June 16, 1966 speaks about using the moon and other celestial bodies exclusively for peaceful purposes, about banning the installation of nuclear weapon on celestial bodies and also about banning the setting up there military bases and installation, the test of weapon and the conduct of military manoeuvre (article IV)[9].

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[6] *See "U.S. News and World Report", November 8, 1957, pp. 44-46.*

[7] *See Izvestiya, April 26, 1963.*

[8] *See "Sovremennoe mezhdunarodnoe pravo. Sbornik dokumentov", pp. 570 573.*

The need to thwart the use of the moon for military purposes finds ever increasing understanding among the wide circles of world public opinion. The Treaty on the Antarctica of 1959 is considered by many as the suitable precedent in this respect[10]. A group of distinguished American scientists expressed its opinion in favor of concluding an international agreement on the legal code of conduct of men on the moon. The report prepared on this question by the Commission on Outer Space, headed by the chairman of "COMSAT" J. Charik, pointed out that the main clauses of such an agreement should be the rejection of the claims of sovereignty, free access to the moon to all for scientific purposes, the ban on military manoeuvre and delivery of weapon on the moon and also the formulation of the procedure of control over the observance of these rules.

The newspaper "New York Times", in an editorial "Law for the Moon" published on December 1, 1965 supported the proposal of the group of American scientists regarding conclusion of an international agreement on the Moon. The "New York Times" also refers to the Treaty on the Antarctica signed on December 1, 1959 as an important precedent in this respect[11].

The draft treaty submitted by the USA before the UNO on June 17, 1966 spoke about permitting the uses of military devices and equipment for scientific research or some other peaceful purpose. Such a forulation seemed to be extremely dangerous because it could be used as the lawful pretext for the covert installation of military equipment on the moon. Such apprehensions were not without ground.

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[9]. See Izvestiya, June 17, 1966.

[10]. See Horsford, C., Legal Problems of Space Exploration, "Impulse", 1964, No.25, p.10.

[11]. New York Times, December 1, 1965.

It is not a secret that the leaders of the USA look at the program of ''Apollo'', which proposes to land man on the moon, not merely as a means of restoring American prestige in the field of conquesting outer space. I. Muller, Head of the Space program''Apollo'', at a press conference in Boston on April 29, 1964, spoke about the hope of the United States of successfully landing American astronauts on the moon through this program, but he also said that this program ''would ensure military supremacy of the United States in outer space''[12]. It is true that in the political and military circles of the USA exist diverse opinions regarding the advisability of setting up on the moon the military bases and delivering there ''absolute'' weapons for conducting outer space missile nuclear war. No none, however, refutes the possibility of using the moon for the military purposes. A number of military experts and scientists of USA are earnestly propagating the war potential of the moon. E. Teller, on March 27, 1962 spoke in the American Congress demanding the establishment of US control over the moon. He said that the country which would set up a colony on the moon would control nearby outer space and would be in a position ''to know what is happening at any place on the earth''[13]. In the opinion of S. Singer, ''outer space in general, and the moon in particular, may prove to be the best place for unleashing military actions, if there would be any necessity of launching war''. ''If one looks at the moon as the sovereign territory of the USA, then by utilizing all the ensuring advantages one can assume the construction on the moon of installations for launching rockets which will be almost unassailable and located under the surface of the moon like in the plans of US air force in which intercontinental ballistic missiles ''minutemen'' are to be located in underground installations. There are grounds to think that existence of craters and mountain clefts on the moon would facilitate the set up of a large number of well protected installations there for launching missiles''[14] — said Singer.

Ban on military use of the moon and other celestial bodies would promote the normal establishment of broad international collaboration in different fields of exploration and mutual understanding and friendship among the nations. Under conditions when such a ban does not operate, the prospect of international collaboration among States for the conquest of the moon and other celestial bodies is extremely restricted and problematic. This is evident even from the following facts. On September 20, 1963 the US President J. Kennedy in his address at the XVIII session of the UN General Assembly proposed to undertake a joint expedition to the moon by the USA and the USSR[15]. And only a day before J. Webb, the Head of the NASA, announced that the USA were interested in using outer space for military purposes and quite unfavorably remarked about the chances of collaboration between the USA and the USSR in organizing flight to the moon[16]. Even the American Congress opposed the proposal of the US President.

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[12] *"Red Star", May 1, 1964.*

[13] *"Red Star", January 4, 1963.*

[14] *"Red Star", January 4, 1963.*

On October 10, 1963 the House of Representatives of the American Congress with 125 votes against 110 votes forbade the expenditure of "even one cent from the American funds for participation in landing man on the moon organized jointly by the United States and any other State under the power or control of the communists"[17]. The decision of the House of Representatives was adopted as an amendment to the bill on the allocations for outer space exploration. The amendment was introduced by Senator Thomas Pelly (Republican member from the Washington State), a member of the commission of the House of Representatives on science and astronautics. Interesting is also the fact that the native town of this congressman is Seatle-- the headquarters of the aviation company" Boeing Airplane Company" which is executing important orders in connection with the moon exploration project. " This decision reflects oppostion to collaboration with the Russians in implementing the project of landing on the moon"-- said T. Pelly when the House of Representatives had voted for his proposal[18].

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[15] *In "Za Rubezhom", 1963, No. 39, p. 7.*

[16] *See New York Mirror, September 25, 1963.*

[17] *Pravda, October 17, 1963.*

[18] *New York Herald Tribune, October 11, 1963.*

Wording of the amendment of Pelly was somewhat toned down in the Senate and in the Consent Commission of the Senate and House of Representatives of the American Congress. However this did not change its substance. In the final version, the act on allocations for space exploration, approved by the US Congress and signed by President Johnson on December 20, 1963, bans the use of any device meant for these exploration for "participation in landing man on the moon which could be jointly carried out by the United States and any other country without the consent of the Congress"[19].

Opponents of American - Soviet collaboration in conquesting outer space refer to the fact that the allocations for American space program amount to astronomical figures. Silence is, however, maintained in this context that the lion's share of these allocations is taken by the military space program and that economy in expenditure is possible mainly in military allocations.

In this connection the newspaer New York Times rightly pointed out that " the advocates of economy in expenditure should be the best supporters of the American President's proposal on Soviet-American collaboration because, if the USA and the Soviet Union collaborate and share expenses instead of each country trying to accomplish this feat, it is evident that man can be sent to the moon at less cost for us"[20].

The decision of the House of Representatives of the USA is the direct result of the activity of the ultra militarist circles of the Pentagon and dealers of rocket business standing at their back, who are achieving increase in the allocations for military space programs and attempting to frustrate any step towards lessening of international tension. Of course, the plans of Pentagon are still far from actual implementation. At the same time, they furnish one more proof of how important is the definition of legal regime of the moon and other celestial bodies.

The principle according to which the moon and other celestial bodies are not subject to national appropriation has found

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19. The New York Times, July 20, 1963.

20. The New York Times, October 13, 1963.

general recognition in practice as well as in scientific literature. This principle was first formulated by the UN General Assembly on December 20, 1961 in its resolution 1721 (XVI). This resolution stated that celestial bodies are accessible for exploration and uses to all the States in conformity with international law and are not subject to appropriation. The principle according to which celestial bodies are not subject to national appropriation has been strenghthened in the Declaration of Legal Principles regulating the Activities of the States in the Field of Exploration and Uses of Outer Space [UN General Assembly resolution 1962 (XVIII) dated October 13, 1963]. The Declaration precisely defines that such appropriation can be made neither by a proclamation of sovereignty nor on the basis of use or occupation, nor by any other means (clause 3 of the Declaration). The drafts of the treaty submitted by the USA and the USSR before the UNO confirm the principle embodied in the UN General Assembly resolution 1962 (XVIII).

Ban on national appropriation of celestial bodies eliminates the chances of their appropriation by private individuals and companies. We are constrained to speak about this because in some countries commercial companies have sprung up for selling plots on celestial bodies to private individuals. According to the commu-unication of the foreign press, by the end of 1955 more than 4500 American citizens have acquired lunar plots at the price of 1 dollar per acre. An industrious trader in Japan has organized the sell of plots on the surface of Mars. Shares of companies for selling the property right on lunar plots are fixed at the exchange. Usual success in the conquest of outer space finds reflection in the course of these shares. Preliminary sale of tickets to the tourists desirous of flying to the moon in future was organized in the USA. According to the just comment of the Polish jurist J. Machowski, such private entrepreneur's activities rather come under the appropriate articles of criminal procedure code (blackmail) than under the norms of space law[21]. At the same time, these are the facts which compel us to draw our attention to an apparent resolved problem. It is not accidental that the Austrian jurist E. Fazan, in the first clause of the draft of the Basic Principles of Legal Regime of Outer Space submitted by him in 1963, mentioned about ban on not only national but also private appropriation of celestial bodies.

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[21] *See Machowski, J., Paragrafy dla kosmosa, str. 106.*

Besides the United Nations Organization, the problem of legal status of celestial bodies was discussed in different international scientific organizations -- in the International law Association, in the Institute of International Law, in the International Astronautical Federation. All these organizations expressed the opinion in support of the fact that celestial bodies are the common property of mankind and are not subject to national appropriation.

The International Law Association, in its 47th Conference in 1956 in Dubrovnik (Yugoslavia), included in the agenda the general problems of legal regime of outer space, and in its 49th Conference in 1960 at Hamburg (Federal Republic of Germany) adopted a resolution which recommended to the States ''not to make claim on sovereignty or on other exclusive rights with regard to celestial bodies''[22].

The Institute of International Law in a resolution in 1963 formulated the principle according to which celestial bodies are not subject to appropriation in any form and are free for exploration and uses by all the States exclusively for peaceful purposes.

A group of jurists of the Inter-American Association of Advocates at the initiative of American jurist W. Hyman approved at the conference at Bogota (Columbia) in February, 1961 The Great Charter of Space Law[23], in which the clauses 'q' and 'r' dwell on legal regime of celestial bodies.

These clauses state:

''q) Landing of man on any other planet where life exists, or its occupation does not give any country on this globe any right to possession or control over this planet;

r) Peoples of the earth announce that they recognize the right to sovereignty, possession and control over any other planet only on the part of its inhabitants''.

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[22] *"Report of the 49th Conference of the International Law Association", L., 1961, p.267.*

[23] *See Hyman, W., Wanted a Policeman for Outer Space, "Space Law and Sociology Conference, American Rocket Society", N.Y., 1962, p.25.*

The Working Group of the International Institute of Space law under the International Astronautical Federation evinced maximum activity in the field of study of the legal status of celestial bodies. A special group for working out the problems of legal status of celestial bodies was set up at the XI International Astronautical Congress, held in 1960 in Stockholm. This group prepared the first report on this problem for the XII International Astronautical Congress, held in October, 1961 in Washington. At the same time a draft resolution was prepared on the basis of the principle banning occupation of celestial bodies by States. The draft resolution proclaimed celestial bodies as common property (res communis omnium), management of which was proposed to entrust to a special international organization under the aegis of the UNO[24].

In 1961-62 the Working Group continued to be engaged on this problem and prepared a second report for the XIII International Astronautical Congress, held in September, 1962 in Varna (Bulgaria). The draft resolution on this report once again proclaimed the principle which bans appropriation of celestial bodies by States. It also proposed to set up an international agency for governing celestial bodies as a specialized institution of the UNO. The second report distinguished planets which are populated with intelligent creatures from the planets which are not populated with intelligent creatures. Aside from this, the draft resolution of 1962 did not use the term " res communis omnium". This was explained by the intention of not using terminology of Roman Law in legal problems of outer space without particular need[25]. A third report was prepared by the Working Group for the XIV International Astronautical Congress, held in 1963 in Paris. A draft resolution prepared by Austrian jurist E. Fazan was appended to the report. These principles are as follows:

" Section A

1. Celestial bodies or their part are not subject to national or private appropriation.

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[24] *"Report of the III Working Group on the Problems of the Legal Status of of Celestial Bodies", Belgrade, 1961, p.26.*

[25] *"Second Report of the III Working Group on the Problems of the Legal Status of Celestial Bodies", Belgrade, 1962, p.20.*

2. Celestial bodies should be used only for peaceful purposes:

a) particularly, any activity of military nature like installation of military bases and fortification works, conducting military manoeuvres, and also testing of various weapons on them must be banned;

b) military activities in conformity with right to self-defense are permitted on a celestial body only in case it has been used for aggressive purposes.

Section B

3. With this exception, celestial bodies are open for exploration and uses to all States in conformity with international law including Charter of the United Nations Organization, and particularly in conformity with the following principles:

a) right to use a celestial body should include right to exploit its possible natural resources;

b) each State that sets up a station on a celestial body should bear the responsibility for it and have jurisdiction over it;

c) each State that explores and uses a celestial body should respect the legal rights of any other State or company;

d) each State that explores and uses a celestial body should adopt measures for preventing any contamination resulting from its activities.

Section C

4. Natural space objects like meteorites which as a whole can be moved across outer space should not.be regarded as celestial bodies for the purpose of this resolution.

5. Principles of this resolution should not be applicable to celestial bodies on which traces of the existence of intelligent life have been discovered or can be assumed with full justification "[26].

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[26] *"Third Report of the Working Group III of the International Institute of Space Law", P. 1963, pp.10-11.*

The members of the Working Group prepared comments on the draft submitted by E. Fazan. For example, Argentinian jurist A. Cocca suggested to incorporate in the preamble to the draft a clause which would mention that national appropriation of celestial bodies, particularly of the moon, would create considerable potential threat to security and peace on the earth. He also wanted to add at the end of clause 3 of section B "a reference to the principles of space law". Accordingly, the concluding part of the clause would read: "particularly in conformity with the following principles of space law".

A. Cocca suggested to add to clause a) of section B a provision in accordance with which a State extracting material resources on a celestial body should inform other States about this fact and share with them the resulting wealth.

Greek jurist N. Pulanzas and Yugoslav jurist M. Smirnov criticized the author of the draft on the ground that notwithstanding two previous resolutions of the Working Group, he had not mentioned the special agency of the United Nations Organization which, in their opinion, should execute the functions of government and control of celestial bodies.

N. Pulanzas further said that this UN agency should be authorized to issue licence for "economic exploitation" of outer space. He also suggested to emphasized in the draft the need of total demilitarization of outer space.

Two more separate drafts of a resolution on the problem of status of celestial bodies, prepared by Hungarian jurists Y. Kiss and I. Sabafi, were placed before the Paris Astronautical Congress in 1963. The International Institute of Space Law asked the Working Group under the guidance of Yugoslav jurist M. Smirnov to discuss all three drafts with a view to bringing out of them one resolution. On March 15, 1964 the Working Group assembled in a conference in Paris, where on the basis of these three drafts was prepared one draft resolution on the problem of legal status of celestial bodies. This draft resolution as an appendix to the 4th Report of the Working Group was submitted before the XV International Astronautical Congress, held in September, 1964 in Warsaw. The International Institute of Space Law asked the Working Group to carry on study on the legal status of Celestial bodies. In particular, the Working Group was asked to devote more attention to the study of different legal problems which are arising or may arise in connection with exploration and uses of celestial bodies. Inasmuch as the draft resolution prepared by the working Group of the International Institute of Space Law is a document formulating in great detail de lege ferenda the basic principles of legal regime of celestial bodies, it is worthwhile to dwell on this problem in more detail.

The text of this draft resolution reads: "The International Institute of Space Law,

Recognizing that the new discoveries in outer space and on celestial bodies and peaceful exploration and uses of them including their national resources conform to the interest of the entire mankind;

Acknowledging the duty of careful study of the legal problems of celestial bodies;

Proceeding from the principles of space law, the UN General Assembly resolutions on outer space and provisions of international law including the Charter of the United Nations Organization, which are applicable to the activities on celestial bodies;

Aspiring to promote the aims of the UN Charter on general codification and the efforts of the UN Committee on uses of outer Space for peaceful purpose in respect of celestial bodies;

Considering the modern achievements of space sciences as well as the prospect of development in this field;

Realizing the international character of celestial bodies;

Striving to achieve that the scientific formulationof the provisions ensure exploration and uses of celestial bodies in conformity with the abovementioned aims;

Assuming that the scientifically justified principles to be enunciated later on will promote development of international regulation of this important problem before any undesirable accomplished facts will take place;

Recommends to each State and all competent international organizations the following principles for examination and adoption:

1. Natural objects in outer space including their probable gaseous corona which cannot be artificially shifted from their natural orbits are celestial bodies for the purpose of this resolution.

2. International law, including the Charter of the United Nations Organization, defines the legal status of celestial bodies in conformity with space law, particularly in conformity with the principles contained in this resolution.

3. Celestial bodies and their separate regions should not be subject to national or private appropriation either through proclamation of sovereignty over them or through use or occupation or through any other means.

4. Celestial bodies should be used only for peaceful purposes:

a) any action of military nature like erection of fortification works, conduct of military manoeuvres and also test of any weapon should be particularly banned on them;

b) this resolution should not stand in the way of using military personnel or equipment for scientific explorations or for any other peaceful purpose;

c) Self-defense against armed aggression is permissible on celestial bodies only after all possibilities of peaceful settlement of the conflict have been tried.

5. States or with their permission nongovernmental organizations may explore and use celestial bodies on the basis of equality and in conformity with the provisions of this resolution.

6. Outer Space apparatus and stations on celestial bodies should be registered in the State and carry its flag. States should exercise exclusive jurisdiction over such space apparatus and stations.

7. States should bear responsibility, inclusive of material responsibility, for damage caused as a result of their conducting any activity on celestial bodies in accordance with the rules of general legal outer space responsibility provided in clause 8 of the UN General Assembly resolution 1962 (XVIII).

8. Provisions of other international space-law treaties on rescuing astronauts and spaceships in the event of accident and on space communications should also be applicable to celestial bodies in conformity with the provisions of this resolution.

9. States and other non-governmental organizations exploring and using celestial bodies in conformity with the provisions of this resolution should adopt measures for eliminating any contamination which may occur as a result of conducting such activities.

10. Relations among the members of the space crew of different States on celestial body should not offend the rules which are observed in similar conditions on the earth, and should be based on the general principles of humanism, mutual assistance and good-neighborliness.

11. If any sign indicating the existence of intelligent life can be detected on a celestial body or there are grounds to expect this, the provisions of this resolution should be revised in keeping with the peculiarities of each case and in view of the relations with these living creatures.

12. An international agency under the aegis of the United Nations Organization should be set up for implementing the provisions of this resolution or the already existing agency should be entrusted with such competence so that any possibility of emergence of international conflict in the sphere of activities on celestial bodies could be thwarted by exercising necessary administrative activities"[27].

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[27] *"Fourth Report of the Working Group III of the International Institute of Space Law", Warsaw, 1964.*

A number of provisions of the draft evoked critical comments from other members of the Working Group. The American jurist J. Cooper thinks that the recommendation of guiding principles to the soverign States on the part of the International Institute of Space Law goes beyond the term of reference of the Institute. The provisions of the recommendation relating to the operation of the principle of self-defense on celestial bodies (clause 4 "c") and the setting up of international agency for governing celestial bodies (clause 12) also evoked criticism from J. Cooper.

American jurist A. Haley emphatically pointed out that the International Institute of Space Law was a forum for the exchange of scientific opinions and their discussion, and not a legislative agency. Hence, in his opinion, the drafts of the resolution and the reports should express the personal convictions of their authors, and not involve in this regard the International Institute of Space Law as a whole, as well as the Working Group for studying the legal status of celestial bodies set up under its framework. The definition of a celestial body contained in the resolution (clause 1) evoked criticism from Haley.

Wolf Henrich, the Prince of Hannover, drew attention to the fact that the expression '' international character of celestial bodies'' in the preamble to the draft was much more apt than the term '' res communis'' borrowed from Roman Law which was used in the first draft resolution. In his opinion, reference in the preamble to the draft resolution to ''Lofty ethical and legal standards'' is unhappy because opinions on this score varies greatly. The Prince of Hannover considers it necessary to mention in clause 3 of the draft the possibility of establishing on celestial bodies '' the sphere of interest'' within which individuals can carry out activities on commission from or with permission of the States.

Accordingly, he proposed to formulate clause 3 of the draft in the following manner: ''Sovereignty of one State or a group of States should not be extended to celestial bodies as a general principle. Certain regions in which persons carry out activities on commission from or with permission of a

State or a group of States, however, should be considered as the sphere of their interest''.

The Prince of Hannover also draw attention to certain contradictions in clause 4 of the draft. In his opinion, either celestial bodies should be used exclusively for peaceful purposes, and erection of fortifications, conduct of military manoeuvres and test of any weapon should be banned on them, or right to self-defense should be recognized and in that case necessary military materials should be located on a celestial body. In this connection, the prince of Hannover proposed to formulate clause 4 of the draft in the following manner: ''4. The celestial bodies should be used for peaceful purposes as a matter of principle:

a) Particularly, any measure that goes beyond the limit of self-defense should be banned on them''. The clauses b and c he proposed to keep without change.

In respect of clause 12 on international agency the Prince of Hannover proposed the wording: ''For exercising international jurisdiction in respect of events in outer space and on celestial bodies a special agency either under the control of United Nations Organization or connected with one of the existing international organizations should be set up in order to avert the possibility of emergence of international conflict in outer space or on celestial bodies''.

Aside from this, the Prince of Hannover proposed to include in the draft resolution new clauses:

''13. Jurisdiction should be exercised in conformity with the general rules which have been affirmed in the practice of the International Court as far as they are applicable in outer space.

14. Nonobservance of legal decisions should, in case of necessity, lead to application of sanctions, economic as well as military''.

Greek jurist N. Pulanzas suggested much more far reaching plans on establishment of international agency for governing celestial bodies. He proposed to review the draft resolution with a view to laying special emphasis on the necessity of internationalization of outer space and celestial bodies.

It is evident from the quoted text of the draft resolution and remarks on it that the problem of legal status of celestial bodies requires further study and discussion. The majority of the provisions of the draft resolution need further study (clauses 2, 3, 5, 6, 8, 9, 10), and some provisions evoke serious criticism (mainly clause 12 concerning establishment of an international agency).

Numerous national organizations are also studying the problem of legal status of celestial bodies. In England, the David Davies Memorial Institute of International Studies has prepared in 1962 a draft code in which celestial bodies are recognized as common property and as such to be open for exploration and uses to all the States in conformity with the provisions contained in the code. According to the draft code, these celestial bodies can not be appropriated by any State or used by it for exclusive purposes[28].

In 1958, the Center for the Study of Law and Astronautics in France adopted a resolution which reads: "Intersellar space and the objects located therein should not be the subject of appropriation......"[29].

It is interesting to study the definite evolution in the outlook of the US jurists on legal status of celestial bodies in keeping with achievements of the USSR in the exploration and uses of outer space.

The American authors of "presatellite era", i.e., prior to the launching of the first artificial satellite of the earth by the Soviet Union on October 4, 1957, usually asserted that any State could appropriate the moon and the planets. Let us recall that in those days the USA firmly believed in becoming the first "conquerer" of the moon, and enterprising American businessmen sold plots on lunar surface wholesale and retail to the willing parties. Exactly at that time some American jurists asserted that even simple radar contact that the U.S.A. had established in 1946 with the moon gave them the right of priority in respect of this natural satellites of the earth. These jurists thought at that time that sending the US flag on the lunar surface with the help of a rocket would be sufficient to assume legal possession of the moon[30]. They had in view the practice of symbolic establishment of authority which was widely prevalent during the period of great geographical discoveries.

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[28] *See "Draft Code of Rules on the Exploration and Uses of Outer Space; The David Davies Memorial Institute of International Studies", L., 1962, p. 7.*

[29] *Quotation from G. Bohn, Fondements du droit spacial, P., 1962, p. 56.*

Far more strict requirements for the appropriation of the moon and other celestial bodies started appearing in American literature on space law after the launching by the Soviet Union of her first satellites into outer space, and particularly after the launching of the Soviet space rocket 'Luna-1' in the direction of the moon on January 2, 1959. The theory of 'primary possession' through the establishment of symbolic mark (for example, flag) is already considered inadequate for the purpose of national appropriation of a celestial body. L. Becker, Legal Adviser of the State Department of the USA, in February 1959, formulated the official stand of the US Government with regard to the moon and other celestial bodies in the following way: 'The USA will not put any claim on celestial bodies and will not recognize any claim on them on the part of other States'. At the same time Becker thought it necessary to add that 'the USA reserves the rights which may arise in future as a result of their activities for the conquest of celestial bodies'[31].

In conformity with the official stand of the Government of the USA on this question, the American jurists are arising doubt about the assertions that such symbolic acts as hoisting flag, sending pennant, taking photo, preparing map or exploration are sufficient for justifying the claim of a State on the moon or another celestial body. H. Jacobini speaks about the applicability in case of the moon of the 'traditional' conditions of acquiring new territory on the earth. In this context he considers that the capacity of a State to populate the moon is not obligatory, if the State can withstand the counter claims of other States and is in a position to maintain order there[32]. Ch. Rhyne also thinks that discovery and possession by themselves are inadequate for legal claim on a celestial body. He thinks that actual settlement on a celestial body is the fundamental condition for its appropriation[33].

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[30] *See Huss, P., Let's claim the Moon Now! "Mechanix Illustrated", 1957, February, p. 72.*

[31] *L. Becker, United States Foreign Policy and the Development of Law for Outer Space, "JAG Journal", 1959, February, p. 30.*

A. Haley looks at the moon as a 'free territory' or zone on which sovereignty of a State on the earth can be extended. For this purpose, in his opinion, it is necessary: 1) to hoist a flag on the lunar surface, 2) to send a manned spaceship for inspecting the invisible side of the moon, and 3) to settle a small colony on the moon[34]. In the opinion of A. Haley, similar is the legal status of other celestial bodies on which intelligent creatures do not exist.

S. Potter goes still further; he thinks that landing of manned spaceship on the moon or even conducting scientific exploration on the moon is not adequate for extending State sovereignty to the moon. In his opinion, such claim can be justified only as a result of the implementation of a long-term program of exploitation of the natural resources of the moon[35].

In September, 1959, the US State Department for the first time broke long silence and announced against the theory of primary possession of celestial bodies through placing symbolic marks like State emblem or flag on the surface of these celestial bodies.

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[32] *Jacobini, H., Effective Control as Related to the Extension of Soverignty in Space, "Journal of Public Law", 1959, Spring, pp. 97-119.*

[33] *Rhyne, Ch., The Legal Horizons of Space Use and Exploration, 104 Congressional Record, Washington, 1958, pp. 6152-6155.*

[34] *Haley, A., Can Russia claim the Moon? "The Washington Post", January 19, 1958.*

[35] *Potter, S.B., Moon-usque ad coelum? "Boston Bar Journal", 1957, No. 10, p.28.*

Direct cause of this was the fact that on September 14, 1959, a pennant depicting the emblem of the Soviet Union and containing the inscription 'Union of Soviet Socialist Republics, September 1959' was delivered on the surface of the moon. The State Department of the USA without any reason hurried to issue on the same day an official statement which emphasized that the hoisting of a national emblem on the surface of unoccupied celestial bodies would not create adequate ground for claiming their appropriation. The State Department of the USA proposed to define what actions, besides hoisting of national emblem, were essential for natural appropriation of celestial bodies[36].

Thus, in the USA the theory of 'effective occupation' begins to be referred more and more as the condition of national appropriation of celestial bodies. According to this theory, landing alone of the crew on the moon or another celestial body is not sufficient. A State which has sent a spaceship to the moon must exercise such power there which is required for protecting the acquired rights and inform other States about it. Thus, for the purpose of national appropriation of the moon and other celestial bodies were suggested such requirements which were never demanded in respect of less populated and almost inaccessible regions on the earth. But even these so-to-say excessive requirements for sovereignty on celestial bodies seemed quite inadequate to many American jurists when on September 14, 1959 the Soviet spacecraft 'Lunnik - 2' delivered a pennant on the moon, and 'Lunnik - 3', launched on October 4, 1959, photographed its invisible side. Now the argument about the impossibility of national appropriation of celestial bodies and desirability of their internationalization has already been the burden in the works of American jurists.

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36. "New York Times", September 15, 1959.

American jurists N. Katzenbach, L. Lipson, M. McDougal, F. Jessep, J. Cooper, K. Keating and many others are now upholding exactly such a viewpoint.

In 1959, the American Advocates Association adopted a resolution to the effect that 'in the common interest of mankind ... celestial bodies should not be the subject of exclusive appropriation'[37]. The report of this Association on Space Law, specially prepared for the National Aeronautical and Space Administration of the USA, draw attention to the fact that 'the present tendency of private as well as official viewpoint is clearly against the admissibility of claims on sovereignty in respect of natural celestial bodies'[38].

On September 22, 1960, the US President D. Eisenhower declared that celestial bodies should not be subject of national appropriation through a proclamation of sovereignty[39].

Such is the evolution of the doctrine of space law in the USA. The achievements of the USSR in the conquest of outer space were the decisive factors for this evolution. The fact that the overwhelming majority of the authors in other countries oppose national appropriation of celestial bodies on the ground that they are common property of the entire mankind (res communis omnium) had also certain effect.

Brazillian jurist E. Faria, Dutch D. Goedhuis, West German A Meier, French E. Pepin can be remebered among the foreign authors who uphold such a viewpoint.

These abovementioned authors put forth most diverse arguments in defense of their position on this question. Some of them think that the question of national claims on celestial bodies through the extension of sovereignty should be solved in a manner keeping with the international law regime of the Antarctica (Faria, Goedhuis). Other authors, while supporting the international regime of the moon speak against the extension of the regime of the Antarctica there.

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[37] *"US Symposium", 87th Congress, 1st session, Senate Doc. No. 26. Legal Problem of Space Exploration. A Symposium prepared for the use of Committee on Aeronautical and Space Sciences, United States Senate by the Legislative reference Service Library of Congress", Wash; 1961, p. 571 (further referred to as "U. S. Symposium").*

[38] *ibid., p. 800.*

[39] *ibid., p. 1009.*

The attempt to apply the principle of geographical discoveries to the moon is refuted by many authors on the ground that over centuries man could see the moon every night.

A number of authors emphasize that any attempt on the part of States to extend their sovereignty to celestial bodies will lead to aggravation of the international relations on the earth. Some even go further and think that national claims on celestial bodies are frought with the danger of war.

French Jurist E. Pepin asserts that the traditional principles of international law with regard to appropriation of territory are not applicable to celestial bodies[40]. He draws attention to the necessity of banning military use of celestial bodies.

Brazilian jurist H. Valladao considers celestial bodies as the common property of the entire intelligent population of the universe (res communis ommium universi) and on this ground comes to the conclusion that they cannot be appropriated[41].

The doctrine of space law in the USSR always upheld and still upholds the principles of free access of all States to celestial bodies without their appropriation.

In 1962, G.P. Zadorozhnyĭ wrote that the 'occupation of space bodies at the present stage of development of earth's civilization is totally unthinkable .... '[42]. F. N. Kovalev and I. I. Cheprov have drawn attention to the pointlessness of discussion about occupation of celestial bodies so long as they are inaccessible for landing men, the more so for their prolonged stay there[43]. In case such landing of men will take place, in the opinion of these two Soviet jurists, there will be enough place on the moon and on Mars for the envoys of all the States on the earth and the conditions of their stay there will rather promote establishment of collaboration, and not enmity, among them.

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[40] *Pepin, E., Le droit de l'espace, P.1962, p.95.*

[41] *Valladao, H., The Law of Interplanetary Space, Second Colloquium on the Law of Outer Space, L., 1959, Springer Verlog, Vien, 1960, pp. 163-164.*

F. N. Kovalev and I. I. Cheprov consider that a similar approach to the problem of establishment of sovereignty over celestial bodies and of their uses meets the interest of international collaboration in conquesting outer space much more than the discussion of legal grounds of "occupation of celestial bodies by the States.

Long before the adoption by the UN General Assembly of the Declaration of Legal Principles regulating the Activities of States in the field of Exploration and Uses of Outer Space, G. A. Osnitskaya spoke in favor of establishment of the principle according to which "sovereignty of States should not extend to celestial bodies"[44].

Soviet jurists are of the opinion that the concept of primary acquisition of territory which at one time justified the imperialist policy of capturing colonies, is not applicable to celestial bodies.

The possibility of reviving the morals of the epoch of colonial occupations with all the concepts aiming at justifying and legalizing such occupations not only on the earth but also with regard to celestial bodies is absolutely excluded in our era.

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[42] *Zadorozhnyĭ, G. P., Osnovnye problemy nauki kosmicheskogo prava, (Basic Scientific Problems of Space Law), 'Kosmos i mezhdunarodnoe pravo", Izd-vo IMO, 1962, p. 70.*

[43] *Kovalev, F. N., I. I. Cheprov, Na puti k kosmicheskomu pravu (Towards Space Law), Izd-vo IMO, 1962, p. 89.*

[44] *Osnitskaya, G. A., Osvoenie kosmosa i mezhdunarodnoe pravo (Conquest of Outer Space and International Law), Gosyurizdat, 1962, p. 63.*

In their theoretical discourses the Soviet jurists are guided by the principle that the conquest of outer space should be the issue of entire mankind. It should also be kept in view that even from the formal standpoint the theory of "primary possession" is inapplicable to celestial bodies. In the past, one could discover a new territory on the earth and declare it as his property, but in respect of celestial bodies there can be no talk about discovery because they were optically discovered long before. Similarly, there can be no talk about appropriation of celestial bodies on the ground of their effective occupation because this is almost impossible.

In this connection it should be recalled that even on the earth the theory of "effective occupation" was not applied to the full extent in respect of territories which are less populated and difficult to develop. What then is to speak about celestial bodies which are incomparably more inaccessible ?

Thus, the principle according to which celestial bodies are not subject to national appropriation is universally acceptable in practice as well as in the doctrine of international law.

While opposing occupation of celestial bodies, the Soviet jurists of international law at the same time consider the prospects of scientific and technical progress in exploration and uses of outer space. E.A. Korovin, in his scientific works on space law, for the first time drew attention to this aspect. He always emphasized that the absence of the property right on celestial bodies does not nullify the property right of a State on scientific instruments launched by it into outer space and on scientific research stations which it may establish on celestial bodies[45].

G.P. Zadorozhnyĭ formulates the conclusion that "A State on the earth, which has set up some installations on uninhabited celestial bodies, preserves its sovereign right on these installations if there is no international agreement stipulating their joint exploitation"[46].

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[45] *Korovin, E.A. Lunu prisvoit' nel'zya (Moon can't be Appropriated), "Moskovskaya Pravda", August 16, 1964; by the same author, O mirnom sotrudnichestve v kosmose (On Peaceful Collaboration in Outer Space), "Mezhdunarodnaya zhizn' ", No. 3, p.85.*

So far neither scientific research station with maintenance personnel nor such personnel exist on celestial bodies. Their set up in the future is not only possible but also very likely. With all cogency this has been confirmed by the experiment on walk in outer space by Soviet cosmonaut A.A. Leonov in March 1965 at the time of the flight of the spaceship "Voskhod - 2" along the orbit around the earth[47].

The possibility of man's not only flying in spaceships but also actively acting and working in open outer space has now been proved. Real pre-requisites for the flight and landing of man on the moon have been created.

The principle that celestial bodies are not subject to national appropriation, enunciated in the Declaration of Legal Principles regulating the Activities of States in the Field of Exploration and Uses of Outer Space, requires further development and concretization in keeping with the necessity of solving the problems of management and jurisdiction which will arise with the set up of such stations and settlements on celestial bodies. These problems may be simple in the beginning, but in course of time they will become complicated. The problem connected with the arrival of man on celestial bodies, departure from there, stay of men in scientific research stations and settlements, their mutual relations require legal regulation. There will also arise the necessity of legally regulating the activities of man connected with exploration and uses of natural resources of celestial bodies. Many representatives of the doctrine of space law in the West also drew attention to this fact. English jurist C. Horsford remarks that the principle of banning appropriation of the moon and other celestial bodies has found universal recognition. In his opinion, the problems connected with the jurisdiction over the stations which will be set up on celestial bodies, with the property right on scientific equipment as well as on the mineral and other resources which may be discovered there must be solved at the same time[48]. American jurist M. Menter thinks that the ban on appropriation of celestial bodies does not nullify the right to set up settlement on them. The setting up of such settlements will create numerous legal problems. M. Menter speaks in favor of signing an international agreement on legal status of settlements on celestial bodies, on mutual relations among the inhabitants of the settlements of different countries in the event of calamity, on settlement of disputes which may arise in connection with uses of celestial bodies, on operation of civil and criminal laws, on the system of government as well as on the right to use natural resources of celestial bodies[49].

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[46] *Zadorozhnyĭ, G. P., Osnovnye problemy nauki kosmicheskogo prava, p. 70.*

[47] *Izvestiya, March 19, 1965.*

The overwhelming majority of exponents of the dectrine of space law are coming to the conclusion that exploration and uses of celestial bodies presume the retention of certain rights by each State. Some representatives of this doctrine are trying to expose the legal nature of these rights. Many jurists are arriving at the conclusion about the special nature of these rights, which is wrong from our viewpoint. American jurist R. Woetzel thinks that it is necessary to demarcate between the sovereign rights which ensure the exercise of supreme sovereign power in a certain space by a State and the restricted national rights which a State will exercise on celestial bodies for their exploration and uses[50]. French jurist Ch. Chaumont speaks in favor of introducing a new concept --- "competence of interest" or "competence of use" instead of the traditional concept "territorial competence" in space law[51].

We think that the setting up of stations and settlements on celestial bodies by itself suggests exercise of special rights by a

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[48] *Horsford, C., Legal Problems of Space Exploration, "Impulse", 1964, No.25, p.9.*

[49] *Menter, M., Formulation of Space Law, Conference on Space Science and Space Law. University of Oklahoma, 1963, Proceedings, N.Y., 1964, p.133.*

[50] *Woetzel, R.K., Sovereignty and National Rights in Outer Space and on Celestial Bodies. Proceedings of the V Colloquium, Varna, 1962, p.24.*

[51] *Chaumont, Ch., Le droit de l'espace, P., 1960, p.114.*

State. Sovereignty of State will find its expression in the exercise of these rights[52]. This, however, will not mean extension of such sovereignty to a celestial body as a whole which would be tantamount to its national appropriation.

The opinion of Bulgarian jurist M. Markoff that these rights are only a fragment of the sovereign power of a State seems correct to us[53].

Referring to this problem, E.A. Korovin draws an analogy with the regime of the Antarctica the international status of which does not exclude organization of scientific station in the Antarctica by different states, the personnel and property of these stations being subject to the authority of the national State[54]. We think that such an analogy is quite possible. Main idea of this lies in the fact that it speaks in favor of extending personal jurisdiction to outer space which does not belong to any one and is not subject to national appropriation.

According to article VIII of the Treaty on the Antarctica of 1959, scientific personnel of expeditions and stations in the Antarctica as well as observers are under the jurisdiction of that State alone whose citizens they are[55]. The position of the Soviet Union on this question was embodied in the announcement of her representative at the 1959 Washington Conference on the Antarctica in the following way: "Whatever may be the finally adopted version of the provisions on jurisdiction, they cannot be interpreted to mean that his Government agrees to extend the jurisdiction of another State in respect of any Soviet citizen in the Antarctica"[56]. Similar announcements were made by the representatives of the USA and Belgium.

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[52] *Ushakov, N.A., Suverenitet v sovremennom mezhdunarodnom prave (Sovereignty in Contemporary International Law), Izd-vo IMO, 1963, pp. 6-29.*

[53] *Markoff, M., La Lune et le droit international, P., 1964, p. 24.*

[54] *Korovin, E.A., O mirnom sotrudnichestve v kosmose (On Peaceful Collaboration in Outer Space), "Mezhdunarodnaya Zhizn'", 1962, No. 3, p. 85.*

[55] *"Sovremennoe mezhdunarodnoe pravo: Sbornik dokumentov", p. 50.*

Thus, the Treaty on the Antarctica envisages personal jurisdiction of a State over its own citizens on the Antarctica. Such a decision was arrived at because the Treaty on the Antarctica froze territorial claims of States on this continent[57]. This Treaty envisages that no action or activity creates a ground for announcing, upholding or refuting any claim on territorial sovereignty on the Antarctica and creates any right in the Antarctica so long the Treaty is in force (30 years). During this period no new claim will be made on territorial sovereignty in respect of Antarctica (clause 2 of article IV of the Treaty on the Antarctica).

Celestial bodies like the Antarctica cannot be an object of national appropriation. This, however, does not exclude the possibility of extending personal jurisdiction of States over their citizens who comprise the scientific and maintenance personnel staying on a celestial body. A State which has set up a scientific research station or a settlement on a celestial body, by virtue of its responsibility for everything that happens there, will undoubtedly have jurisdiction in respect of its citizens in the station or in the settlement, and also in respect of all the events occurring there.

The Western literature points out the possibility of collision of national jurisdictions. In case of future emergence of dispute involving exercise of jurisdiction on the moon or on another celestial body, it would be useful to refer again to the Treaty on the

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56. *Quotation from G.I. Tunkin, Khoroshiĭ primer mezhdunarodnogo sotrudnichestva (A Good Example of International Collaboration), "Mezhdunarodnaya Zhizn'", 1960, No.2, p.60.*

57. *Molodtsov, S.V., Sovremennoe mezhdunarodnopravovoe polozhenie Antarktiki (Present Status of the Antarctica in International Law), Gosyurizdat, 1954; Movchan, A.P., Pravovoĭ status Antarktiki - mezhdunarodnaya problema (Legal Status of the Antarctica —An International Problem), "Sovetskiĭ ezhegodnik mezhdunarodnogo prava 1959 g", Izd-vo AN SSSR, 1960, pp.342-357; Slevich, S.B., Antarktika dolzhna stat' zonoĭ mira (The Antarctica must be an Area of Peace), L., 1960, pp.8-22; Molodtsov, S.V., Dogovor ob Antarktike (Treaty on the Antarctica), "Sovetskoe gosudarstvo i pravo", 1960, No.5, p.70.*

Antarctica which stipulates that in such situation the parties must immediately hold mutual consultation with a view to arriving at a mutually acceptable decision (clause 2 of article VIII).

As new stations and settlements will be set up by different States on celestial bodies, it is quite probable that signing of special international agreements will be required for handling the problems connected with them. Legal regime of scientific research stations and settlements on celestial bodies could also be the subject of a general agreement among the interested States. Effectiveness of the principle of rejecting national appropriation of celestial bodies proclaimed by the UN General Assembly will depend considerably on the successful settlement of these problems.

Besides the right to set up scientific research stations and settlements on celestial bodies, the right of each State to exploration and exploitation of the natural resources of celestial bodies should be recognized. The question may arise about using the mineral and power resources of celestial bodies and also about using other resources that may be discovered there. Recognition of such right of different States does not indicate recognition of their right to national appropriation of the entire celestial body or its part. Celestial body must remain as before open for exploration and uses to other States on the basis of equality and in conformity with international law. Unfortunately an analogy with the Antarctica does not give us a solution to this problem. The Treaty on the Antarctica of 1959 is silent on the question of exploitation of mineral resources of this continent, though these resources are considerable. Extensive geological exploration and fast scientific and technical progress will undoubtedly create in the near future the possibility of mining the minerals in the Antarctica[58], and then the necessity will arise for the legal regulation of this problem. At present there is no document which may serve as a model for solving similar problems on celestial bodies.

American jurists L. Lipson, N. Katzenbach and many other authors are seeking corresponding example in maritime law. Following this path, they compare uses of natural resources of a celestial body with fishing in the open sea[59]. A. Cocca proceeds from the fact that the moon is open for uses to the States and that its natural resources should be used in the same way as the natural resources of the open sea[60]. We think that in the given case more appropriate is the comparison with uses by a coastal State of the natural resources on the surface of the continental shelf and in its depths.

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[58] *Slevich, S.B., Antarktika dolzhna stat' zonoĭ mira, pp. 28-49.*

The principle according to which all States enjoy equal right for exploration and uses of celestial bodies has found universal acceptance in space law. In accordance with this principle, each State can organize exploitation of natural resources of a celestial body. In this case the State must reserve the property right on the buildings and plants which are necessary for such exploitation. The area on a celestial body where a State will undertake similar activities will comprise the sphere of its special interest. There is no doubt that within this sphere a State must have rights similar to the rights of a coastal State on the continental shelf. It is true that in case of such comparison one should always keep in view that the rights of a coastal State on the continental shelf arise automatically by virtue of their geographical location. In accordance with clause 3 of article 2 of the Convention on Continental Shelf of 1958, " the rights of a coastal State on the continental shelf does not depend on effective or fictitious occupation of the shelf or on the open announcement in this respect". The phrase "continental shelf" means the surface and depth of the sea bottom of submarine regions adjacent to the coast, but stretched outside the zone of territorial waters, up to a depth of 200 meters or beyond this limit up to any place where depth of the water allows to carry out exploitation of natural resources of these areas[61].

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[59] *Lipson, L., N. Katzenbach, The Law of Outer Space, Report to the N.A.S.A. Legal Problems of Space Exploration, "U.S. Symposium", Washington, 1961, pp. 803-804.*

[60] *Cocca, A., Principles for a Declaration with Reference to the Legal Nature of the Moon, "Proceedings of the First Colloquium on the Law of Outer Space, the Hague, 1958", Springer Verlag, Vien, 1958, p. 37.*

[61] *The concept of continental shelf is also applicable to the surface and interior of submarine regions adjacent to coasts of islands.*

The Convention on Continental Shelf of 1958 considers the particular interest of a coastal State in using the natural resources on the surface of the continental shelf and in its interior. Thus, the special rights of a coastal State do not violate the principle of freedom of the open sea and do not infringe the interests of other States in this respect.

A similar problem will arise in connection with the uses of natural resources of a celestial body by different States. Interest of different States in the exploitation of these natural resources is to be considered on one hand, and freedom of access to celestial bodies is to be ensured for other States on the other. We should recall in this context that two opposite trends were discernible in the discussion over the question of continental shelf at the Geneva Conference on Maritime Law of 1958. The delegations of the Federal Republic of Germany and Japan tried to establish freedom of all States to prospect and exploit natural resources of any continental shelf without taking into consideration the interests of coastal States. On the other hand, the delegations of a number of Latin American countries tried to widen the rights of coastal States through liquidation of the principle of freedom of open sea in the waters covering the continental shelves. The overwhelming majority of delegations at the Genva Conference on Maritime Law of 1958 opposed the attempts to liquidate the freedom of open sea in the waters over the continental shelves. Finally, the Geneva Conference accepted the special interest of a coastal State in the adjoining continental shelf on the one hand, and the necessity of protecting freedom of open sea, on the other, as the basis of legal regulation of the problem of continental shelf.

According to the Convention on Continental Shelf of 1958, " a coastal State exercises sovereign rights over the continental shelf for the purpose of prospecting and exploitation of natural resources (clause 1 of article 3).

Recognition of sovereign rights of a coastal State over the continental shelf for the purposes of prospecting and exploiting its natural resources has raised the question of giving a coastal State the right to construct buildings and plants which are necessary for prospecting and exploiting mineral resources of submarine regions. Clause 2 of article 5 of the Convention stipulates that " a coastal State enjoys the right to erect, maintain and exploit on a continental shelf buildings and other plants which are necessary for prospecting and exploiting its natural resources as well as to create security zones around these buildings and plants and to adopt necessary measures for their protection in these zones".

Establishment and maintenance of order in the security zones and in the regions of buildings and plants is the prerogative of a coastal State. However, extension of jurisdiction of a coastal State to such buildings and plants does not give them the status of islands in an open sea. Clause 4 of article 5 of the Convention on Continental Shelf directly mentions that "such buildings and plants, though they are under the jurisdiction of a coastal State, do not enjoy the status of islands; they don't have their territorial waters, and their existence does not affect the definition of the limits of the territorial waters of a coastal State".

Erection of such installations should be properly notified, and permanent devices should be maintained in order to warn about their existence. Installations, which were abandoned, or are not exploited any more, should be liquidated (clause 5 of article 2 of the Convention).

In the opinion of S. V. Molodtsov, "legal status of buildings and plants of a coastal State meant for exploitation of the resources from the bottom of the sea cannot have any comparison with the legal status of a State territory"[62].

The Convention on Continental Shelf of 1958 contains a number of special provisions so that the rights of a coastal State over continental shelf do not violate the regime of an open sea. Thus, according to clause 1 of article 5 of the Convention, "prospecting of the continental shelf and exploitation of its natural resources should not create unjustified disturbances to navigation fishing or protection of live resources of the sea, and also should not create obstances to capital oceanographic or other scientific explorations conducted for publication". Clauses 5 and 6 of the

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62. *Molodtsov, S. V., Mezhdunarodnopravovoĭ rezhim otkrytogo morya i kontinental'nogo shel'fa (International Legal Regime of an Open Sea and Continental Shelf), Izd-vo AN SSSR, 1960, p. 314.*

article 5 of the Convention also contain provisions for ensuring the interest of navigation.

The Convention preserves also the right of all States to lay and maintain in good working condition the under-water cables or pipelines on the continental shelf. According to article 4 of the Convention, this right may be restricted only in cases when the coastal State adopts the necessary measures for prospecting the shelf and exploiting its natural resources. Thus, the Convention on Continental Shelf of 1958 considers the interest of a coastal State in the region of continental shelf and at the same time does not allow the use of these rights against the regime of open sea.

S. V. Molodtsov draws attention also to the fact that "the Convention does not give any opportunity to a coastal State to use its rights on the continental shelf for such purposes which are inimical in respect of other States, or, for violating international law"[63]. First of all it has in view the inadmissibility of constructing military fortifications in the region of continental shelf.

The abovementioned provision of the Convention on Continental Shelf of 1958, as already shown, may be of interest for settling the question about the nature and extent of the rights of individual States to exploit and use natural resources of celestial bodies. At present, it is of course difficult to foresee everything in detail. Strictly speaking, necessary scientific data about the structure of the moon and other celestial bodies are still not available. Hence, any attempt to analyze in detail all these problems at the present level of our knowledge of celestial bodies would be of utopian nature to a great extent. Our task is much more modest : to define the general tendency of development and to mention most corresponding problems which have already been solved in other branches of international law, particularly in maritime law.

Keeping in view what has already been said, we shall point out that the Convention on Continental Shelf of 1958 testifies about the possibility of successful solution through negotiations of most complicated problems of international law, which may arise in connection with the uses of natural resources of celestial bodies.

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[63] *ibid., p.318.*

In conformity with the Declaration of Legal Principles regulating the Activities of States in outer space, natural resources of celestial bodies are open for use to all States. However, if any State undertakes exploitation of these resources at a particular area of a celestial body, erects necessary buildings and plants, we think that the State's right to exclusive use of this area should be recognized in the same way as a coastal State's exclusive right on continental shelf for the uses of its natural resources.

The example of the solution of the problem of continental shelf also indicates that the economic interests of a State undertaking exploitation of natural resources of a celestial body can be properly protected without any need of national appropriation of the entire celestial body or its part. Thus celestial bodies will be open for exploration and uses to other States also.

If living creatures exist on a celestial body, the problem of their protection aiming at averting their destruction will assume great significance. Establishment of strict control over importation of earthly forms of fauna and flora to celestial bodies will be required. In case of necessity, interested States can establish agreed recommendations on steps for the protection of natural resources on celestial bodies.

Western literature, devoted to the study of legal regime of celestial bodies, put forth the arguments in favor of their "internationalization" and transfer for management by the United Nations Organization or some other international organization. Similar proposal was made by the Working Group on the problem of legal status of celestial bodies, which was set up in 1960 at the XI Congress of the International Astronautical Federation in Stockholm. It proposed to set up an international agency for governing celestial bodies as a specialized institution under the United Nations Organization.

Experience on the earth does not furnish any ground for supporting such proposals. Let us recall that even the Antarctica was not handed over under international management. The Treaty on Antarctica envisages only regular convocation of consultative conference of the representatives of countries who are original parties to the Treaty[64].

Such form of agreement on activities of States may be quite acceptable for celestial bodies also. There is no doubt that in the course of conquest of the moon and other celestial bodies will arise many problems which will require coordination and agreement of efforts of the interested States. In particular, this may concern problems like construction and use of landing and take-off grounds, distribution of power resources, mutual assistance in the event of calamity, exercise of jurisdiction, communications in the conditions of celestial body, exploitation of mineral resources, protection of various forms of life on a celestial body, promotion of scientific exploration and collaboration, exchange of meteorological and other data having great importance for persons staying on a celestial body, and series of other problems which are difficult to foresee.

We think it quite possible that the process of man's penetration into the depth of the universe will create the necessity for suitable specialized international-law regulation of the activities of the States in the field of exploration and uses of individual celestial bodies. Unchallanged priority in this respect belongs to our natural satellite - the moon. In view of the success achieved in conquesting the moon, more detailed regulation of her international law regime seems quite timely. The basic principles of space law, embodied in the Declaration of the UN General Assembly on October 13, 1963, in the Moscow Treaty on banning the tests of nuclear weapons in the atmosphere, outer space and under water and the UN General Assembly resolution of October 17, 1963 on not launching objects carrying nuclear weapons into outer space, would be subject to certain concretization and elaboration in course of such regulation.

Further scientific and technical progress in the field of conquest of other celestial bodies will considerably depend on the solution of legal problems involved in exploration and uses of the moon.

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[64] *Each country signing this Treaty may also become participant in such conference, provided that this country evinces her interest in the Antarctica by conducting there major scientific research activities like setup of scientific stations or sending scientific expedition.*

The sun and all the stars around us which can be seen by naked eyes make the large cluster of stars - the Milky Way or the galaxy ("galaktos" - in Greek "milky"). The Milky Way comprises hundreds of millards of stars like our sun. The scientists determine the diameter of the galaxy at 90,000 light years (light year - distance which light passes in one year. One light year $=9.5 \times 10^{12}$ kilometers)[65]. There are a large number of stellar systems like our galaxy. They are also called galaxies of "extragalactic nebulas", emphasizing that they are located beyond our stellar system. The great and small Magellanic clouds in the southern hemisphere of the sky and the nebula in the constellation Andromeda in the northern hemisphere of the sky are our nearest galaxies of the universe.

Astronomers hold opinions about the existence of numerous populated worlds and of intelligent creatures in some stages of social development on other planets. In this context, the question has been raised in scientific literature on space law that along with the conquest by man of the so-called distant outer space there may arise the necessity of formulating legal norms for the purpose of regulating mutual relations among the envoys from the earth and the inhabitants of other planets. It is true that so far we don 't have data about the existence of living being like men in outer space. Opinion of scientists on this point varies. Some refute the possibility and probability of existence of intelligent creatures in outer space, others defend the possibility of existence of such creatures.

The bold hypothesis of Soviet radio astronomer N. S. Kardashev on artificial orgin of the sources of outer-space radio emission STA - 102 and STA - 21 has created considerable interest in the world press[66]. According to the hypothesis of N. S. Kardashev, these sources may be the radio signals coming from outer-space civilizations at a great distance from us. These radio emissions were discovered by American radioastronomers in 1960. Observations of Soviet radioastronomers over these phenomena led to a great scientific discovery. It was discovered that the radiation flux of the source STA - 102 regularly changes with time according to the periodic law, and the period of changes of the flux is nearly 100 days. Soviet radioastronomer N. S. Shklovskii in connection with these observations does not exclude the hypothesis that in the given case, an artificial signal from extraterrestrial civilization could be detected[67]. It is quite natural that new observations are required in order to prove this thrilling hypothesis to be a simple scientific fact.

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[65] *Pskovskiĭ, Yu. P., Kakovy razmery nasheĭ Galaktiki (What is the Size of Our Galaxy), "Priroda", 1964, No.11, pp.94-97.*

[66] *Pravda, April 14, 1965.*

At the present tempo of development of science and technology, what was till recently considred a fantasy, and today hypothesis, may become a reaility in future.

Keeping this in mind, let us be indulgent to those jurists who, considering the possibility of encounter between the envoys from the earth and the intelligent inhabitants of other planets, are studying the nature of mutual relations among them.

Pompeo Magno, Director of the Italian Institute of Space Law, even thinks that prevention of war among the worlds and its catasprophic consequences depends on the solution of this problem[68]. Some jurists argue that the relations between the inhabitants of the earth and the intelligent creatures of other celestial bodies should be based on the principles of natural law. For such case American jurist A. Haley propounded a special theory of metalaw which should be based on the following principle: "Behave with others the way they would like you to behave". Metalaw in translation means law beyond the earth. A. Haley recommends the principles of metalaw for application to any form of life which may be considred to be at the level of development of man[69].

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[67] *ibid.*

[68] *Magno, P., Possibility of Existence of Extraterrestrial Beings. Proceedings of the 6th Colloquium on the Law of Outer Space, P., 1963.*

[69] *Haley, A., Mediko-yuridicheskie aspekty deyatel'nosti v kosmose (medico-Legal Aspects of Activities in Outer Space), "Sovremennye problemy kosmicheskogo prava",IL, 1963, p. 363.*

Another American jurist Ch. Rhyne thinks that if men will discover living beings on some planet, relations between men and these beings shall be based on the postulates of justice and reason[70].

Keeping in view the possibility of encounter between the envoys from the earth and the intelligent beings of other planets, Italian jurist P. Magno proposed to create a new branch of law -- the astral law. In his opinion, it should be based on mutual respect for its subjects, inadmissibility of violent action or actions causing damage, except in cases of justified self-defense, and should follow the age-old rule: "Don't do to others what you don't want to be done to yourself".

Some jurists quite seriously discuss how man should behave if he discovers a celestial body already occupied by beings who came from other celestial bodies, and from other galaxies. Many of them are aspiring to show their liberal attitude towards the inhabitants of outer space. American jurist A. Haley suggests a general ban on landing of astronauts on other celestial bodies so long as "invitation based on full and mutual knowledge of related risk does not come" from the inhabitants there "who are capable of intelligent intercourse"[71].

In 1964, E.A. Korovin wrote on this question: "If thinking on astral or interplanetary law may seem to be on the border line of scientific fantasy, this question deserves to be recorded when raised at international meetings and scientific conferences. Firstly, at the modern tempo of development of science and technology what only yesterday appeared as a fantasy, and to day a scientific foresight, may become a reality tomorrow. Secondly, it is extremely significant that authors like P. Magno, who are far away from communism, conceiving the form of future universal interplanetary law and refuting colonialism and other forms of international oppression, are compelled to think in terms of peaceful coexistence and friendly collaboration among the peoples"[72].

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[70] *Rhyne, Ch., The Legal Horizons of Space Use and Exploration, 104 Congressional Record, Washington, 1958, p. 6153.*

[71] *Haley, A., Mediko-yuridicheskie aspekty deyatel'nosti v kosmose, "sovremennye problemy kosmicheskogo prava", IL, 1963, p. 363.*

[72] *Korovin, E., Mezhplanetnoe pravo? (Interplanetary Law?), "Mezhdunarodnaya Zhizn' ", 1964, No. 3, p. 130.*

CHAPTER IX

ALTITUDINAL LIMIT OF SOVEREIGNTY

The question concerning the possibility of future emergence of the problem of exact establishment of the altitudinal limit of a State's sovereignty should be solved while keeping in view the prospects of development of space law. The pros and cons of the establishment of such limit are being advanced in literature on Space Law.

The arguments against the adoption of measures for settling the problem of such limit through fixation of a certain height for the application of State 's sovereignty in an international agreement can be summed up as follows: 1. Absence of clearly expressed consent so far has not led to international conflicts. 2. Attempt to conclude an international agreement on delimitation of the altitudinal limit may serve as a stimulus for advancing immoderate demands by individual States (it is easy to open a Pandora's box than to close it). 3. This limit may be established at such a great height that it may create serious difficulties for some kinds of outer-space activities of States. 4. The possibility of an agreement on a lesser height for such limit is excluded because of the apprehensions of States that it would threaten their interest and security. 5. Once the altitudinal limit of a State's sovereignty is agreed upon, it will be difficult to lower it later on. 6. Agreement arrived at much later stage will give an opportunity to fix such limit at the lesser height, which would be in keeping with further development of scientific and technological progress in conquesting outer space. 7. Arbitrary altitudinal limit of sovereignty may become the source of disputes, and not the means of preventing them, because of probable complaints against the violation of such limit and of difficulties involved in exactly fixing the location of outer-space object.

Usually the following arguments are advanced in support of establishing the altitudinal limit of sovereignty: 1. Existence of an official agreement would stand in the way of States advancing in future unjustified claims of sovereignty in respect of outer space near the earth under the pretext that this was "air space". 2. In view of a number of possible interpretations of the existing conventions it is not excluded that some States will in future try to protest against the activities in outer space under the protext of violation of their sovereignty in air space. Recognition of such protests would enable individual States to protest against concrete types of outer-space activities (some thing like the right of veto). 3. Disputes on extension of air space may lead to international conflicts. 4. Establishment of altitudinal limit would be a significant contribution to the enunciation of space law.

According to international law, a State enjoys full and exclusive sovereignty in respect of air space over its territory.

This norm has been embodied in the internal legislation of practically all the countries of the world. The Air Code of the Soviet Union of 1961 lays down: "The Union of Soviet Socialist Republics enjoys total and exclusive sovereignty over the air space of the Soviet Union.

Air space of the USSR means air space over the land and waters belonging to the USSR, including the territorial waters defined by the legislation in USSR and international treaties signed by the USSR"[1].

The air code of the USSR stipulates that international flights, i.e., flights across the State boundary of the USSR can be made by Soviet and foreign aircraft after obtaining special permission from the Ministry of Civil Aviation. The procedure and conditions for allowing flights of foreign military aircraft over the territory of the USSR are defined in special rules. According to these rules, the crew of a foreign aircraft for flight in the USSR, must obtain prior permission of the Soviet Government through the diplomatic channel. Regulations on Protection of State Boundary of the USSR of 1960 consider as violators of boundary "those aircraft which cross the limit of air space of the Union of Soviet Socialist Republics without prior permission from the competent Soviet authorities for flight across the border and over the land and waters of the USSR, or with the abovementioned permission, but across the borders in an unspecified area or with violation of flight height" (clause 'd' of article 26) [2].

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[1] *"Vedomosti Verkhovnogo Soveta SSSR" (Gazette of the Supreme Soviet of the USSR), 1961, No. 52, Article I.*

The principle of sovereignty of States over air space has been embodied in existing multilateral and bilateral international agreements. For example, the Chicago Convention of International Civil Aviation of December 7, 1944 states in article I: "the contracting States recognize that each State enjoys total and exclusive sovereignty in respect of air space over its territory". This provision is reiterated by article I of the Paris Convention on Air Navigation of October 13, 1919. Article 8 of the Chicago Convention of 1944 states: "No aircraft, capable of flying without a pilot, will fly without a pilot over the territory of any contracting State without special permission of this State or without observing the provisions of the permission".

Recognition of the principle of sovereignty of a State over its air space means recognition of the full right of each State to regulate all air movement over its territory, i.e., the right of States to disallow flights over its territory of any foreign aircraft with crew as well as with remote control, which are heavier than air as well as lighter (for example, air baloons), if special conventions and agreements relating to aircraft of any one or more specified countries do not make provision for any thing else. The principle of sovereignty over air space also implies the right of States to ban transportation of certain categories of cargo by aircraft as well as use of certain apparatus etc. over their territories and equally the right to adopt any measure for intercepting the violation of a State's sovereignty by foreign aircraft. The history of the question of a State's sovereignty over the air space located over the territory indicates that the enunciation of the present day concept of "sovereignty over air" and its triumph in international practice were mainly in the interest of the security of States. It is extremely significant that the English delegation at the Versailles Peace Conference of 1919, which formulated the Paris Convention on Air Navigation, upheld the principle of total sovereignty over air space. Several arguments were advanced in justifying this stand.

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[2] *"Vedomosti Verkhovnogo Soveta SSSR", 1960, No. 34, Article 324.*

Concession of the right to a foreign flying apparatus to fly over the territory of another State would mean offering undesirable opportunities for carrying out espionage. On the other hand, this would restrict the elementary rights of a State to adopt necessary measures for self-protection. Moreover, acceptance of the concept "freedom of air" above a certain height would place the neutral countries in a difficult situation in the conditions of military conflict. They would actually face the risk of airborne fights being conducted over their territories since they would not be able to protest against the violation of their sovereignty[3].

Hundreds of satellites and spaceships were launched during the last few years after the Soviet Union launched the first artificial satellite into the orbit around the earth on October 4, 1957. The orbit of some of them which is nearest to the earth lies at a distance of 160 kilometers. This, however, did not evoke protests from the States over whose territories they passed. Hence, the conclusion can be drawn: In conformity with the international practice the principle of freedom of outer space covers the flights of space objects along the orbit around the earth with the minimum perigee of 160 kilometers. We think that it is still early to say that the international convention is under formation or has already been formed on the basis of this practice. The absence of protests from the States against the launching of Satellites is interpreted by meany authors as implied consent to peaceful activities in outer space in general and not as recognition of the freedom of access to outer space at a certain altitude. Anyhow, the majority of authors prefer not to associate the absence of protests from States against launching of space objects with the recognition of the altitudinal limit of sovereignty.

The Chairman of the committee on law of outer space of the International Law Association, D. Goedhuis (Holland) wrote the following in this respect: "The fact that the States have so far not protested does not imply at all that they can not express their protest" [4].

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3. *See "Sovestskiĭ ezhegodnik mezhdunarodnogo prava 1958", 1959, p. 136.*

4. *Goedhuis, D., General Questions on the Legal Regime of Space. The International Law Association. Report of the 50th Conference at Brussels, 1962, L., 1963, pp. 74-75.*

Thus, sovereignty of a State in respect of the air space over its territory is a norm of international law. At the same time, the question: What is air space and where lies the altitudinal limit of sovereignty, has been left open in international law.

The international documents regulating the outer-space activities of States are also silent on the line of demarcation between air space which is under the State's sovereignty and outer space which is open for exploration and uses to all States. The question about the boundary between atmosphere and outer space has not been touched upon in the Treaty on banning the tests of nuclear weapons in the atmosphere, outer space and under water. While concluding the Moscow Treaty there was no need to dwell on this question because ban was equally applicable to the atmosphere and outer space. The UN General Assembly resolution 1884 (XVIII) dated October 17, 1963 appeals to the States "to refrain from launching into an orbit around the earth any object carrying nuclear or other forms of weapons of mass annihilation, from installing such weapon on celestial bodies or placing such weapon in outer space by some other way". Unlike Moscow Treaty on partial ban on test of nuclear weapon, the sphere of action of the resolution 1884 (XVIII) is restricted only to outer space and does not extend to air space. Hence, the following conclusion can be drawn: Line of demarcation between air space and outer space should be fixed not above the level of movement of objects launched into an orbit around the earth. However, the resolution on abstention from launching into orbit of space objects carrying nuclear weapon on board does not envisage ban on military use of outer space and thus does not eliminate the difficulties and apprehensions which are creating obstacles at present on the way of solving the problem of altitudinal limit of sovereignty. Moreover, the UN General Assembly resolution 1884 (XVIII) dated October 17, 1963 is a fresh confirmation of the fact that the determination of the altitudinal limit for the extension of State's sovereignty in overground space depends considerably on how far the disarmament problem will be solved.

The absence of an obligatory norm defining the altitudinal limit of a State's sovereignty in overground space has to be mentioned at present. Such a norm can be established through international understanding and conclusion of suitable multilateral agreement. Most diverse criteria were advanced in the doctrine of space law for the purpose of defining altitudinal limit of a State's sovereignty [5].

In some cases the sphere of action of a State's sovereignty was identical with the earth's atmosphere; in other cases - with the altitude which air flying apparatus can reach, or with the altitude at which free flight of artificial satellite is possible. Some jurists identified the sphere of action of a State's sovereignty with the space which is under effective control of such State, or with the sphere of earth's gravitation. In advancing one or the other criteria for defining the altitudinal limit of a State's sovereignty, the jurists proceeded from the premise that the definition of such limit was the essential precondition for subsequent enunciation of space law. Arguments in favor of such approach basically led to the conclusion that the claims of individual States on outer space, through which pass the orbits of artificial satellites of the earth, may create insurmountable obstacle on the way of conquest of outer space. In 1958 - 59 such apprehensions were expressed in the United Nations Organization by the representatives of Sweden, Canada, Chile, Italy, France and Spain [6]. For example, the Swedish representative demanded in 1958 in the United Nations Organization that the altitude at which outer space begins should be delimited accurately. In 1959 the Swedish representative expressed the hope that the lower limit of outer space should be accurately defined [7]. The stand taken by the United States at that time on the question of legal regime of outer space caused serious alarm among the respesentatives of many countries in the UNO. The governmental circles of the USA at that time considered outer space as a sphere of action to which a State's sovereignty can be extended. This stand was reflected in numerous announcements of L. Becker, the Chief Legal Adviser of the State Department, which he made in May 1958 in various commissions of the American Congress. In particular, he spoke in support of determining the limit of sovereignty at an altitude of 16000 kilometers from the surface of the earth [8]. The official stand of the US Government on this question evoked sharp criticism inside the country as well as outside. Keeping this in mind, after a year, L. Beeker, in his speech at the session of the special Committee of the UNO on outer space, announced that at a certain height outer space should be free and open to all States [9]. The report prepared by the special Committee of the UNO on outer space referred the problem of determination of line of demarcation between air space and outer space, as belonging to "other problems" which do not require immediate review [10]. This Committee existed only for a year (during the period between XIII and XIV sessions of the UN General Assembly). Because of the nonrepresentative nature of the composition of this committee, the USSR, Poland, Czechoslovakia, India and UAR thought it impossible to participate in its work.

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[5] *See Kovalev, F.N., I.I. Cheprov, Na puti k kosmicheskomu pravu (Towards Space Law), Izd-vo IMO, 1962, pp. 36-72; Osnitskaya, G.A., Osvoenie kosmosa i mezhdunarodnoe pravo (Conquest of Outer Space and International Law), Gosyurizdat, 1962, pp. 43-50; McDougal, M., H. Lasswel, I. Vlasic, Law and Public Order in Space. New Haven - L., 1964, pp. 324-349.*

[6] *McDougal, M., H. Lasswell, I. Vlasic, Law and Public Order in Space, pp. 323-324.*

[7] *ibid., pp. 323-324.*

The question of altitudinal limit for the extension of a States sovereignty was not specially reviewed while discussing the problems of space law in the United Nations Organization. This can be explained by two factors: firstly, the Un General Assembly in resolutions 1721 (XVI) and 1962 (XVIII) confirmed the principle in conformity with which outer space is open for uses and exploration to all States and sovereignty of States cannot be extended thereto. They dispelled the doubts about the possibility of extending a State's sovereignty to one's territory at a considerable height. Secondly, difficulties, which stand in the way of achieving international agreement on this question, were taken into account.

Failure in attempts to find out criteria of physical or technical nature for solving the problem of altitudinal limit of sovereignty led some authors to total negation of the necessity of establishing such limit in future. As opposed to the so-called space approach to the regulation of space activities of States, they advance a functional approach according to which strict demarcation between flights of aircraft and spacecraft is quite adequate. Drawing a sharp distinction between these two types of activities, the adherants of functional approach deny in general the necessity of demarcation between air space and outer space. It should be noted that the functional approach has certain positive aspects in so far as it stresses attention to the necessity of legal regulation of various types of space activities of States without considering the limit separating the air space from outer space. In fact, various types of space activities, such as rescue of the crew of a spaceship in the event of accident of forced landing, responsibility for damage caused by space objects on the earth, prevention of collision between aircraft and spacecraft, marking and registration of space objects, return and landing of spaceships, distribution of radio frequencies for the need of space radio services, do not depend on the establishment of altitudinal limit of sovereignty. Main types of space activities of States, however, are directly concerned with the implementation of the principle of freedom of exploration and uses of outer space, and this, in its turn, sooner or later will raise the problem: how to combine the freedom of activities in outer space with the principle of total and exclusive sovereignty of States over the air space spread over their territories.

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[8] *ibid., p.231.*

[9] *Goedhuis, D., Conflicts of Law and Divergencies in the Legal Regimes of Air Space and Outer Space, "recueil des cours de l'Academie de droit international", 1963, t. I, p.286.*

[10] *UN document A/4141, July 14, 1959, pp.93-94.*

The functional approach has been enunciated in detail in the lectures delivered by Italian jurist R. Quadri [11] and French jurist Ch. Chaumont [12]. Quadri and Chaumont think that the division of the space near the earth into air space and outer space would lead to a situation in which a large number of legal provisions would be applicable in respect of a spaceship in an extremely brief span of time and it would be difficult to establish under which jurisdiction a space object remains at that moment[13].

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11. *Quadri, R., Droit international cosmique, "Recueil des cours", 1959, t. III, pp. 509-597.*

12. *Chaumont, Ch., Le droit de l'espace, P. 1960, p. 124.*

13. *ibid., p. 47.*

Both these authors come to the unanimous decision that from the viewpoint of space activities the space over the earth "comprises an indivisible, interrelated whole, without distinction of zones and division into zones" [14]. Thus, one uniform legal regime, and not a multiplicity of legal regimes, operates within this space [15].

In their views, Quadri and Choumont are not consistent to the end. For example, Quadri asserts that even if one proceeds from the premise that legal regime is determined not by the place but by the nature of activities, from the theoretical point of view this is not an obstacle for the purpose of distinguishing two types of space activities and establishing in conformity with this a special legal regime for that kind of activities which take place above certain limits [16]. Both the authors evidently contradict their initial theoretical presumpsions when they recognize also that the freedom of space activities is restricted by the existence of territorial sovereignty and hence no space activity is admissible, if it violates law and order on a given territory and causes harm to States or to their citizens. Hence space activities should not disturb air navigation in particular [17].

At the same time the representatives of functional approach justify the necessity of "free movement of spacecrafts through air space of other States" by reference to the so-called "freedom of ether". R. Quadri asserts that the speed of a spacecraft cannot be controlled and in this respect they can be compared with radio communications which "for the first time destroyed the dogma about the inviolability of territorial sovereignty"[18]. In the opinion of R. Quadri, the question of aeronavigational apparatus, as and when their speed will increase, should be solved in the same way. The theory of "freedom of ether" was advanced in the thirties by a number of French, Belgian and

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[14] *Quadri, R., op. cit., pp. 553, 561, 579.*

[15] *Chaumont, Ch., op. cit., p.52.*

[16] *Quadri, R., op. cit., p. 524.*

[17] *ibid., pp.577-578; Chaumont, Ch., op. cit., p.53.*

[18] *Quadri, R., op. cit., p. 563.*

Italian jurists against the principle of State's sovereignty Italian international law expert A. Ambrozini, who represented Italy at the first, second and third sessions of the Judicial Subcommittee of the UN Committee on Uses of Outer Space for peaceful purposes, in his text book on air law in 1933 affirmed that the States cannot be recognized as sovereign in the field of radio communications. Ambrozini strengthened his viewpoint with the argument that radio waves spread out disregarding boundaries of individual States, that the wave transmitted by a comparatively low-powered radio transmitter may go round the entire globe and come back to the aerial transmitting it, and that, lastly, these waves, spread out at such height which may be considered as infinite. Proceeding from these considerations, Ambrozini thought that talk about the sovereignty of State in air space is possible only in respect of air communications. That is why Ambrozini refuted the possibility of application of State's sovereignty to radio communications. S.B.Krylov has pointed out as early as 1950 that the roots of "the theory of freedom of ether" are analogous to the roots of "the theory of freedom of air" in the field of air law[19]. Both the theories are directed against the principle of State's sovereignty. However, international law practice as well as statements of the majority of representatives of the doctrine of international law speak in support of recognition of the sovereignty of States in the field of radio communications. The obligation of a State to allow the Hertz waves to pass through its air space is usually compared to the obligation to allow the transit telegram through wire telegraph. In both the cases, obligations arising out of international agreements by no means refute sovereignty of a State in the field of communications.

The sovereignty of the USSR in the sphere of ether is exercised in accordance with clause 'n' of article 14 of the Constitution which refers management of transport and communications to the union jurisdiction. Exercise of sovereignty of the USSR in the field of radio communications and radio broadcasting is under the competence of the highest organs of the State power and organs of the government. In exercising sovereignty in the field of radio communications and radio broadcasting, the USSR restricts itself by the accepted international obligations.

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[19]. *Krylov, S.B., Mezhdunarodnopravovoe regulirovanie radiosvyazi i radioveshchaniya (International-Law Regulation of Radio Communications and Radio Broadcasting), p. 369.*

At present despite most diverse statements of the jurists regarding altitudinal limit of a State's sovereignty, there is one definite field which does not lead to disagreement in the majority of jurists. Almost all of them agree that the altitudinal limit of a State's sovereignty should be established above the ceiling of usual flights of aircraft. At the same time, absence of protest from the States on the ground that some kind of activities in outer space violates their sovereignty is considered as a forcible argument in favor of the contention that the altitudinal limit of sovereignty should be located below the possible perigees of the orbits of artificial satellites of the earth which are in existence for a long time. In this context, many authors voiced the assumption that this boundary should be established above the ceiling of usual flights of aircraft (40 kilometers) and below the perigee of orbits of artificial satellites (150 kilometers).

In our opinion, such an approach does not give due consideration to the prospect of scientific and technological progress in the field of development of air and space craft. A. Mikoyan, Chief Air Designer of the Soviet Union, as early as in 1962 expressed the view that in near future aviation and rocket technology will merge closely [20]. Events of subsequent years have fully confirmed the prognosis of the distinguished Soviet air designer. For example, concrete facts testify that the speed and height of the flight of aircraft have increased almost two-fold after the so-called "sound barrier" has been crossed. This has been facilitated due to powerful turbo-jet engines and hermetically sealed cabins for the crew. Record flights of aircraft in operation are carried out already at a speed of 2500 -3000 kilometers per hour. Aim of the further development of aircraft design is the conquest of the speed of the regular flight at 3500 - 4000 kilometers per hour [21]. Scientists of many countries are working for the creation of a ramjet engine for supersonic flying

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20. *Mikoyan, A., Ot samoleta k kosmicheskomu korablyu (From Aircraft to Spaceship), "Krasnaya Zvezda", January 9, 1962.*

21. *Myasishchev, V., K giperzvukovym skorostyam i kosmicheskim vysotam. (Towards Hypersonic Speeds and Outer Space Heights), "Aviatsiya i Kosmonavtika", 1965, No. 8, pp. 14-15.*

apparatus. American experts think that the use of such an engine in the multiple-use rockets as well as in aircraft with hypersonic flight speed is quite possible.

It is not excluded that scientific and technical progress in the field of supersonic and hypersonic aerodynamics may result in future in the creation of flying apparatus which will differ very little from space apparatus in their technical data. Any how, there is a tendency nowadays to increase considerably the cruising speed of aircraft and to raise the ceiling of its altitude. At the same time, depending on the improvement in the space technology, satellites with engines will be able to remain continuously in the flight at an altitude lower than that at which their free flight is possible now. Some foreign experts think that satellites may in course of time come down to the level of present-day ceiling of the altitude of aircraft.

Thus, it is quite possible that the minimum altitudinal limit of sovereignty, formulated by the majority of authors will be practically coming closer. It is also possible that certain types of activities, typical for air navigation will be conducted at greater altitudes as compared with what are peculiar to typical outer space types of activities. Thus, ceiling of ascent of aircraft and of perigees of the movement of the earth's satellites cannot be taken as stable criteria for solving the problem of altitudinal limit of sovereignty. This fact is often used by individual authors for justifying the necessity of functional approach to the regulation of activities of States in the overground space, irrespective of the place of occurrence of such activities. In such an approach to the solution of the problem a State should exercise sovereignty in respect of the kinds of activities, which are typical for air navigation, even if these activities are carried out at altitudes above the orbits of satellites. On the other hand, sovereignty of States will not extend to individual kinds of space activities carried out at lower altitudes. Provided that it is not always easy to distinguish cosmonautics from aeronautics, such an approach to the solution of the problem of altitudinal limit of sovereignty may, in our opinion, cause unnecessary complication. In some cases it can be used as a pretext for the protest against certain kinds of activities in outer space, and in some other cases - for justifying the violation of sovereignty of States in the air.

It should be kept in view that the basic assumption of the adherants of the functional approach that it is quite easy to distinguish space activities from all other kinds of human activities is open for criticism. Even now it is not always simple to draw a clear line between outer-space and air flying apparatus. For example, how to classify the launching of intercontinental ballistic missiles? In the opinion of some jurists, flight of such rocket is very close in technical data to flight of an artificial satellite of the earth; in the opinion of other, it is very close to flight of medium-range ballistic missiles and to flight of artillery shells.

In future, in connection with the possibility of making spacecraft which will be able to glide in air space, move along a ballistic trajectory and go out into the orbit of the earth, it will be still more difficult to distinguish between outer-space and air flying apparatus. Spacecraft will probably be a combination of ballistic rocket and aircraft. If the weight of an aircraft in flight is balanced by the aerodynamic forces, the weight of a spacecraft in flight will be balanced not only by aerodynamic forces, but also by centrifugal forces arising at high speed of flight around the earth.

A spacecraft will fly beyond the dense atmospheric strata at an altitude of 100 - 200 kilometers with an initial speed which is equal to the first space speed. Beginning of the flight is like the launching of a guided ballistic missile. The main supply of fuel should be spent on ascent beyond dense atmospheric strata. After the acceleration up to a speed of approximately 7.9 kilometers per second the spacecraft will fly along a ballistic trajectory with break. As a whole, a spacecraft will have the basic features of a modern aircraft with the elements of a spaceship. The basic problem of making spacecraft is connected with high temperatures that are created in the process of break at the time of entry into sufficiently dense atmospheric strata, i.e., at the time of landing on the earth.

A special glider bearing the name "Asset" was tested in the USA in the beginning of the year 1965 as part of the program for making such a flying apparatus. Test flight of flying apparatus of the type "SV-5" along a ballistic trajectory with return to atmosphere at first space speed and landing at a speed of usual aircraft are earmarked for the coming years. D. Douglas, a representative of the American "Douglas Aircraft Company", on July 17, 1965 announced that his design bureau was working over a ballistic aircraft with jet engine. Such an aircraft will have vertical take-off and soft landing. Speed of this flying apparatus will be 7.6 kilometers per second, which is slightly less than the first space speed (7.9 kilometers per second).

Aircraft and motor construction plants in Munich (Federal Republic of Germany) are now working over a project of space "automobile" which may take off from an aerodrome, deliver useful cargo to near-the-earth orbits of artificial satellites and return to the earth on completing the assignment [22]. Near-the-earth orbits mean altitudes up to 500 kilometers. Unlike the rocket carriers in use at present which are intended for single start only and hence disproportionately costly, the space "taxi" can be used again after the flight like any other aircraft. A gigantic catapult will be used for the start from the airodrome. A fully loaded space taxi will weigh 120-200 tons. It is proposed to "shoot" it in the air at a speed of nearly 900 kilometers per hour from special starting slide rails stretched over more than three kilometers track. Fuel of the first stage should be exhausted at a distance of about 50 kilometers over the earth, and the second stage carrying on board the useful load should be launched into the orbit. This load of 2.5 tons is insignificant as compared to the load of the rocket at starting. That is why the space transporter is called "light automobile" in contrast to similar projects in the USA, which plan to manufacture a space transport device carrying approximately six times more of useful load.

Thus we see that great attention is being devoted to the problem of space flights in near-the earth space. In near future the vast expanse of this space will be ploughed by flying apparatus capable of moving along a ballistic trajectory, going out into the orbit around the earth, gliding in air space and making soft landing on the earth. Under such conditions will arise very complicated problems of international-law regulation of the activities of States in overground space. Precisely overground space, because it will be difficult to demarcate the sphere of activities of aircraft, spacecraft and spaceships.

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22. Verl', R., Kosmicheskiĭ "legkovoĭ avtomobil'" (Space "Light Automobile"), "Za rubezhom", 1965, No. 48, p. 29.

Can the necessity of future establishment of altitudinal limit of sovereignty be refuted on this ground? We think that sufficient grounds don't exist for drawing such conclusion. On the contrary, the necessity of establishment of altitudinal limit of sovereignty may become quite appreciable in course of development of flying apparatus of the combined type which will be able to move in air space as well as in outer space.

We think it advisable not to associate establishment of this limit with unsuccessful search for natural line of separation between air space and outer space. It is wellknown that the upper atmospheric strata gradually dwindle and disperse in outer space. Light gases like hydrogen, ammonia and methane are lost for good along with oxygen and nitrogen. Small dust particles, hurled by the volcanoes from the interior of the earth, pass away. Simultaneously, a reverse process occurs from outer space. Outer space rays constantly shower on the earth, dust settles, meteorites fall. When such exchange of matters takes place between the earth and outer space, it is difficult to speak about any natural border which separates air space of the earth from outer space. Absence of some natural boundary in overground space, in our opinion, does not eliminate the problem of determination of altitudinal limit of States. With a view to clarifying our stand on this complicated problem, we refer to maritime law for the purpose of comparison. Quite evident is the fact that there is no natural boundary between the territorial sea, within which a State exercises sovereign right, and the open sea. That one particular ship may sail along the coast as well as across the vast expanse of an ocean will by no means challenge the fact of extension of sovereignty of a coastal State to the coastal part of the sea. On this ground no one challenges the existence of the boundaries of territorial waters.

Thus, analogy to maritime law speaks about the possibility of fixing an altitudinal limit of sovereignty, irrespective of physical and technological criteria. J. Johnson, the Chief Legal Consultant of the National Aeronautics and Space Administration of the USA, thinks that such boundary has to be fixed arbitrarily on the basis of international agreement. He expresses his opinion in favor of fixing such boundary at a relatively low altitude[23]. A Meier, the Director of the Institute of Air and Space Law under the Cologne University, thinks that an international agreement should establish the altitudinal limit of sovereignty in terms of figure, keeping in view the opinion of the experts and disregarding whether the agreed altitude in terms of figure conforms to physical laws [24].

In summing up, one may arrive at the conclusion that neither public international law, nor the General Assembly resolution mentioned before solve the problem of altitudinal limit of sovereignty. Opinions of individual authors on this problem are of doctrinal nature which is not binding on the States. A norm defining the altitudinal limit of sovereignty, which is binding on the States, can be established only through international understanding and conclusion of a suitable agreement. This problem is, however, not ripe as yet for solution and no State has come forward with concrete proposals for the demarcation of such boundary. Under present conditions this is a problem concerning primarily the interest in the security of States, and quite understandable are the apprehensions of those who think that the extension of sovereignty to a relatively low altitude does not properly ensure the security of States from outer space. It would appear that the only way out was to proceed along the path of considerable extension of the altitudinal limit of sovereignty. However, from the viewpoint of security of States, altitudinal limit of sovereignty on overground space has no decisive significance. A State will not feel greater security, if war preparations against it will be carried out at a greater altitude[25].

Moreover, even if sovereignty of States is extended to an unlimited altitude, security of States will not be properly safeguarded. Within its overground space each State will have legal right to conduct any military measure such as launching of space platforms carrying nuclear bombs, which will present serious threat to the vital interest of other States. Besides, sovereignty of other States on overground space will be regularly violated. According to the justified remark of G.P. Zadorozhnyĭ, "for the purpose of ensuring security of States against the threat from outer space the determination of the altitudinal limit, of their sovereignty in the overground space is not as important as the determination of admissible and inadmissible activities in outer space, and this once again takes us to the problem of neutralization of outer space and disarmament on the earth"[26].

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[23] *Johnson, Sh. J., Freedom and Control in Outer Space, "Proceedings of the Conference on Space Science and Space Law. University of Oklahoma, Norman Oklahoma, June 18-20, 1963", N. Y., 1964, p. 142.*

[24] *See "Zeitschrift fur Luftrecht und Weltraumrechtsfragen", 1958, p. 204.*

[25] *Katzenbach, N., Law and Layers in Space, "Bulletin of the Atomic Scientist", June 1958, p. 222.*

In 1959, the present author expressed the opinion[27] that security of States, so far as outer space is concerned, can be most reliably safeguarded through demilitarization and neutralization of this space within the framework of universal and total disarmament (and not through the extension of sovereignty of individual States to an unlimited distance from the earth). Even today, such an approach to the solution of this problem seems to be the only feasible approach. The ban on uses of outer space for military purposes will eliminate the difficulties and apprehensions which now stand in the way of solving the problem of altitudinal limit of sovereignty. At the same time, implementation of measures on disarmament in outer space and on the earth is not at all aimed at depriving States of their sovereignty in the air space[28]. Under new conditions, legal regime of air space in the sense of extension of sovereignty there will be established in keeping with the necessity of creating maximum favorable conditions for the transportation of cargo and passengers through outer space to different regions of the earth situated far away from each other and for the return of spaceships from the moon and other celestial bodies.

The necessity of exact specification of jurisdiction which extends to a spaceship and its crew during a flight over the territory of foreign States may assume great importance in course of development of space navigation.

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[26] *Zadorozhnyĭ, G.P., Osnovnye problemy nauki kosmicheskogo prava (Basic Scientific Problems of Space Law), p.56.*

[27] *Mezhdunarodnaya Zhizn' (International Life), 1959, No.11, p.124.*

[28] *Zadorozhnyĭ, G.P., Osnovnye problemy nauki kosmicheskogo prava, p.44.*

The Declaration of Legal Principles has in view the necessity of demarcating between air space and outer space, when it stipulates in clause 7 that a State, which launched a spaceship, preserves the jurisdiction and control over such ship and over any of its crew during the period of their stay in outer space.

However, as mentioned earlier, the Declaration is silent on the question of jurisdiction over a spaceship and its crew during its passage through air space of a foreign State. This question should be the subject matter of an appropriate international agreement. Theoretically speaking, there are two ways of solution: 1) recognition of the fact that a State, which has launched a spaceship, preserves jurisdiction over it during the entire period of space flight, including the period of flight through the air space of a foreign State (naturally, with the permission of the latter); 2) recognition of the fact that a foreign State exercises jurisdiction over a spaceship and its crew during the period of its flight through the air space of this State.

Both the ways of solution of the question of jurisdiction originate from the assumption of demarcation between air space and outer space; and here we have in view the air space where a State exercises total and exclusive sovereignty.

Considering the great speed of spaceships, we think it more convenient to preserve the jurisdiction of a launching State during the entire course of a flight, including the flight through the air space of a foreign State subject to consent of the latter to such flight.

Modern radar technology enables us to determine with great accuracy the location of flying apparatus. Hence the argument that the demarcation of altitudinal limit will not be useful because it is impossible to establish accurately in the sphere of which State a flying apparatus is located apparently ignores modern technological achievements. References to inconvenience of the situation that a space object during a short period of time remains in a sphere of action where various legal regimes operate are groundless. The vertical flight of a spaceship through regions having diverse legal regimes will not substantially differ from the usual horizontal flight of a modern aircraft through air space of States wherein exist diverse legal systems.

Sometimes opinions are expressed in literature to the effect that the principle of freedom of exploration and uses of outer space must be strengthened by the right of peaceful passage of a spaceship through the air space of another State.

The memorandum prepared by D. Goedhuis for the Tokyo Conference of 1964 mentions that if a State will enjoy the right to ban the passage of spaceships through its air space, the freedom of exploration and uses of outer space will become an illusion. The course of a spaceship at the time of launching into outer space and also at the time of its return from this space was taken into consideration in this connection. The air space over the territory of the launching State and also vast expanses of air space over the open sea [29] may in both cases be quite adequate.

But even in such cases when the territory of a State is too small to provide it with the chance of launching an object into outer space or of its return from there through its own air space, the situation is not hopeless. There is a possibility of coming to an understanding with neighboring States about the passage of a spaceship through their air space while observing certain conditions or of launching from installation in the open sea.

In any case, there is no reason to consider peaceful passage of a foreign spaceship through the air space of another State as the condition sine qua non for the realization of the principle of freedom of exploration and uses of outer space by all the States.

While raising this problem and solving it, one should proceed primarily from the assumption that each State enjoys total and exclusive sovereignty over its air space. In practice, this means the recognition of the right of each State to regulate all air traffic over its territory and to adopt necessary measures for defending the inviolability of its air limit.

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[29] *Let us recall that only 29 percent of the surface of the earth is under State's sovereignty. Remaining 71 percent constitutes oceans, sea and the Antarctica, to which sovereignty of a State does not extend.*

International practice does not give any reason for the review of the principle of total and exclusive sovereignty of States in respect of air space over their territories. Moreover, the facts prove that even in future the States intend to defend the inviolability of their air limit in the interest of their national security. Hence, it is not accidental that the right of so-called peaceful passage was not confirmed in international air law. This means that an aircraft may cross the air space of another State only after obtaining permission from the latter.

There is no reason to make an exception in this respect for spaceships. Before one speaks about the passage of a foreign spaceship through the air space of another State, it is necessary to know where such space ends for the purpose of exercising total and exclusive sovereignty and where begins outer space.

J. Johnson thinks that the closest near-the-earth space, located within 40 to 150 kilometers, has particular significance for the flight of spaceships while going out into the orbit and returning from there [30].

So far spaceships returned to the earth at the first space speed. While returning from the moon, the spaceship will fly at the second space speed, and it is quite natural that the problem of its passage through the atmosphere will be considerably complicated. J. Johnson draws attention to the fact that a spaceship, while returning from the moon to the earth, shall have to pass, prior to landing, one third of the path around the earth at an altitude between 40 and 96 Kilometers [31].

It is not excluded that the international practice will take into consideration the specific nature of the return journey of spaceships from the moon and other celestial bodies. This, however, is a matter of the future. At present we don't have adequate technical data in order to examine the legal aspects of this question.

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[30] *Johnson, J., Freedom and Control in Outer Space, p. 140.*

[31] *ibid.*

CONCLUSION

At one time the development of navigation and aviation led to the emergence of maritime law and air law. The conquest of outer space has laid the foundation for the emergence of space law. At present this law is at the stage of its formation. Only the primary norms of space law have been enunciated. They are far from covering all the relations which are emerging or may emerge among the States in connection with exploration and uses of outer space. Space law should follow closely the scientific and technological progress in conquesting outer space, consider its prospects and promote strengthening of peace and friendship among the nations.

Exploration of outer space should be undertaken for peaceful creative purposes. Mankind is vitally interested in seeing that in outer space reigns strict law and order which would exclude arbitrary rule and lawlessness, ban experiments which are hazardous to life and health of people.

At the first stage of conquest of outer space it was sufficient to recognize that the space activities of man should conform to the general principles of international law, including the principles envisaged in the Charter of the UNO. However, life consistently demanded concretization and development of these general provision in keeping with the specific nature of the activities in outer space. The necessity of formulating the basic principles of space law arose in this connection.

An important step in this direction was the adoption by the UN General Assembly in 1963 of the Declaration of Legal Principles regulating the Activities of States in the Field of Exploration and Uses of Outer-Space. The next step is the conclusion of an international agreement on principles of space law. Such agreement should, on the one hand, develop those principles which have already been formulated in the Declaration of the UN General Assembly, and on the other include a number of new principles.

It should be kept in view that the principles of space law include the most common rules of conduct of States in outer space. That is why concrete questions arising in the course of their application require in a number of cases the conclusion of special international agreements. The question of the day is about the conclusion of agreements on rendering assistance to crew of spaceships in the event of an accident or their forced landing, and on responsibility for damage caused by the objects launched into outer space. The question about the legal measures for averting potentially dangerous consequences of experiments in outer space requires serious study.

A series of legal questions arise in connection with the use of satellites for the purpose of distant radio communications and also for meteorology and navigation. The problem of formulating the legal regime of the moon and other celestial bodies will become a reality along with the conquest of distant outer space.

The development of astronautics will usher in the era when flights to the moon and other celestial bodies nearest to the earth like Mars and Venus will become an usual phenomenon. Soft landing on the surface of the moon by the Soviet automatic station "Luna-9", delivery to Venus of a pennant containing the Emblem of the Soviet Union, successful launching of the first artificial satellite of the moon -- these are only the first harbingers of flights into distant outer space.

A time will come, when scientific expeditions will be arranged not only to the moon, Mars and Venus, but also to more distant regions of the universe. It is probable that the envoys of our planet will some time meet intelligent creatures living in distant worlds which are still unknown to us. The possibility is not excluded that these meetings will lead to the establishment of interplanetary contacts. Then probably formulation of the norms of new interplanetary law, aimed at regulating the relations among the inhabitants of different planets will be required.

Today, however, it is most important to think about those legal problems which are arising in connection with space activities of the States in space near the earth. Soon permanent orbital stations will be revolving about the earth. Mankind is interested to see that such stations are used exclusively for peaceful purposes.

In connection with the appearance of outer space orbital stations the question may arise about the possibility of their use by countries which did not participate in their setting up and launching. The necessity of legal regulation of the conditions of such use will arise in similar cases. Many concrete questions also requiring legal regulation will be constantly arising in the course of scientific and technical progress in the field of conquest of outer space.

It should be kept in view that space activity is closely associated with purely earthly problems. Demilitarization and neutralization of outer space cannot be achieved without disarmament on the earth. Absence of proper legal regime in outer space is fraught with various dangerous conflicts and complications not only in this new sphere of human activities, but also in purely earthly affairs.

Space law, the youngest branch of international law, is to ensure conditions which will make outer space a zone of durable peace, an arena of fruitful international competition and cooperation for the welfare of mankind and for the benefit of all the States.